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ABSTRACT

Health needs and health services in rural America are key issues directly related to education as well as community well-being. This report examines rural America's access to basic health care services and discusses options for congressional consideration. The focus is on trends in availability of primary and acute rural health care and on factors affecting those trends. The report describes the characteristics of rural populations and health programs, the availability of rural health services and personnel, and delivery of rural maternal and infant health and mental health care services. On each subject, options for congressional action are examined. The federal government currently finances several different types of rural health care programs, and has a strong interest in health care trends. Major declines in inpatient utilization, compounded by increasing amounts of uncompensated care, have undermined the financial health of many rural hospitals, which also are faced with the outmigration of rural residents to urban areas for care. Policy reform options are presented in regard to: (1) improvement of rural health facilities; (2) availability and training of health professionals in rural areas; and (3) enhancing maternal and infant care programs and mental health care programs in rural areas. This document contains numerous charts, graphics, data tables, and appendices that present background information about the study. It also includes a 745-item bibliography and a subject index. (TES)

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Health Care in Rural America

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ABOUT THE COVER:
Population density map of the Unites States (one dot equals 1,000 people). Black areas represent areas of relatively low population density.

Health Care in Rural America

CONGRESS OF THE UNITED STATES
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Foreword

Federal policies to advance the Nation's health have often included provisions to mitigate the special problems in delivering health care in rural areas. Recently, however, these policies have received renewed scrutiny in the face of reported increases in rural hospital closures, ongoing problems in recruiting and retaining health personnel, and difficulty in providing medical technologies commonly available in urban areas. Mounting concerns related to rural residents' access to health care prompted the Senate Rural Health Caucus to request that OTA conduct an assessment of these and related issues. This report, *Health Care in Rural America*, is the final product of that assessment. (Two other OTA papers, *Rural Emergency Medical Services* and *Defining "Rural" Areas: Impact on Health Care Policy and Research*, have previously been published in connection with this assessment.)

An advisory panel, chaired by Dr. James Bernstein of the North Carolina Office of Rural Health and Resource Development, provided guidance and assistance during the assessment. Also, three public meetings were held (in Scottsdale, Arizona; Bismarck, North Dakota; and Meridian, Mississippi) to provide OTA with the opportunity to discuss specific rural health topics with local and regional health practitioners, administrators, and officials. Site visits to local facilities were conducted in association with these activities. A number of individuals from both government and the private sector provided information and reviewed drafts of the report.

OTA gratefully acknowledges the contribution of each of these individuals. As with all OTA reports, the content of the assessment is the sole responsibility of OTA and does not necessarily constitute the consensus or endorsement of the advisory panel or the Technology Assessment Board. Key staff responsible for the assessment were Elaine Power, Lawrence Miike, Maria Hewitt, Tim Henderson, Leah Wolfe, Marc Zimmerman, and Rita Hughes.

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NOTE: OTA appreciates and is grateful for the valuable assistance and thoughtful critiques provided by the advisory panel members. The panel does not, however, necessarily approve, disapprove, or endorse this report. OTA assumes full responsibility for the report and the accuracy of its contents.

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[1] From May 1989.
[2] Until May 1989.
[3] Until August 1989.
[4] From June 1989.
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[6] Until June 1989.

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Glossary of Abbreviations

AAFP —American Academy of Family Physicians
AANP —American Academy of Nurse Practitioners
AAPA —American Academy of Physician Assistants
ACNM —American College of Nurse-Midwives
ACOG —American College of Obstetricians and Gynecologists
ADAMHA —Alcohol, Drug Abuse, and Mental Health Administration (PHS)
ADMS —Alcohol, Drug Abuse, and Mental Health Services Block Grant
AFDC —Aid to Families with Dependent Children
AHA —American Hospital Association
AHCPR —Agency for Health Care Policy and Research (PHS)
AHEC —area health education center
AHP —allied health professional
AMA —American Medical Association
AOA —American Optometric Association
ASC —ambulatory surgery center
BHCDA —Bureau of Health Care Delivery and Assistance (HRSA, PHS)
BHPr —Bureau of Health Professions (HRSA, PHS)
BLS —Bureau of Labor Statistics (Department of Labor)
CCEC —Community Clinic/Emergency Center
CDC —Centers for Disease Control (PHS)
CFR —Code of Federal Regulations
CHC —community health center
CHMSA —Critical Health Manpower Shortage Area
CLT —clinical laboratory technician/technologist
CMHC —community mental health center
C/MHC —community/migrant health center
CNM —certified nurse-midwife
COBRA —Consolidated Omnibus Budget Reconciliation Act of 1985
COGME —Council on Graduate Medical Education
CON —certificate of need
CRNA —certified registered nurse anesthetist
CT —computed tomography
DEFRA —Deficit Reduction Act of 1984
DHEW —Department of Health, Education, and Welfare (now DHHS)
DHHS —Department of Health and Human Services
DO —doctor of osteopathy
DRGs —diagnosis-related groups
EACH —Essential Access Community Hospital
ECH —Emergency Care Hospital
EMT —emergency medical technician
EPSDT —Early and Periodic Screening, Diagnosis, and Treatment (Medicaid)
ESWL —extracorporeal shock wave lithotripsy
FMG —foreign medical graduate
FmHA —Farmers Home Administration (USDA)
FNP —family nurse practitioner
FP —family practitioner
FR —Federal Register
FTC —Federal Trade Commission
FTCA —Federal Tort Claims Act
FTE —full-time equivalent
FY —Federal fiscal year
GAO —General Accounting Office (U.S. Congress)
G/FP —general/family practitioner
GME —graduate medical education
GMENAC —Graduate Medical Education National Advisory Committee
GP —general practitioner
GPCI —Geographic Practice Cost Index
HCFA —Health Care Financing Administration (DHHS)
HHI —Herfindahl-Hirschman Index
HMO —health maintenance organization
HMSA —Health Manpower Shortage Area
HPOL —HMSA Placement Opportunity List
HRSA —Health Resources and Services Administration (PHS)
HUD —U.S. Department of Housing and Urban Development
IMU —Index of Medical Underservice
IOM —Institute of Medicine
IRS —Internal Revenue Service
JCAHO —Joint Commission on the Accreditation of Healthcare Organizations
LHD —local health department
LP/VN —licensed practical/vocational nurse
MAF —Medical Assistance Facility
MD —medical doctor
MHC —migrant health center
MHREF —Montana Hospital Research and Education Foundation
MHS —multihospital system
MLP —midlevel practitioner
MPCA —Michigan Primary Care Association
MRI —magnetic resonance imaging
MSA —metropolitan statistical area
MUA —Medically Underserved Area
MUA/P —Medically Underserved Area/Population
MUP —Medically Underserved Population
NGA —National Governors' Association
NHSC —National Health Service Corps (BHCDA, HRSA, PHS)
NIMH —National Institute of Mental Health (ADAMHA, PHS)
NLM —National Library of Medicine
NP —nurse practitioner
NRHA —National Rural Health Association
OB/GYN —obstetrician/gynecologist
OBRA —Omnibus Budget Reconciliation Act
OMB —U.S. Office of Management and Budget
ORH —office of rural health (State-level)
ORHP —Office of Rural Health Policy (HRSA, PHS)
OT —occupational therapist
OTA —Office of Technology Assessment (U.S. Congress)
PA —physician assistant
PCCA —primary care cooperative agreement
PHHS —Preventive Health and Health Services Block Grant

PHS —Public Health Service (DHHS)
PPA —private practice assignment
PPO —private practice option
PPRC —Physician Payment Review Commission
PPS —prospective payment system (Medicare)
PRO —peer review organization
ProPAC —Prospective Payment Assessment Commission
PT —physical therapist
RBRVS —resource-based relative value scale (Medicare)
RHC —rural health clinic (Medicare/Medicaid-certified)
RN —registered nurse
RPCH —Rural Primary Care Hospital
RRC —rural referral center (Medicare-certified)
RT —respiratory therapist
SCH —Sole Community Hospital (Medicare-certified)
SDMIX —South Dakota Medical Information Exchange
SIDS —sudden infant death syndrome
SNF —skilled nursing facility
SOBRA —Sixth Omnibus Budget Reconciliation Act of 1986
SSI —Supplemental Security Income
U.S.C. —United States Code
USDA —United States Department of Agriculture
WAMI —Washington, Alaska, Montana, and Idaho

Part I

Summary

Chapter 1

Summary and Options

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Chapter 1

Summary and Options

INTRODUCTION AND SCOPE

This report is about access of people in rural America to basic health care services.

The 1980s witnessed rural economic decline and instability, major changes in Federal health programs, and increasing concern about the long-term viability of the rural health care system. This concern prompted the Senate Rural Health Caucus and the Ranking Minority Member of the Senate Committee on Labor and Human Resources to request that OTA assess the availability of health services in rural communities, the problems rural providers face, and the remedial strategies that might be influenced by Federal policy.[1]

This report focuses on trends in the availability of primary and acute health care in rural areas and factors affecting those trends.[2] The rest of this chapter summarizes OTA's findings and conclusions on rural health care availability and presents options for congressional consideration. Many of these options bear some similarity to proposals by others to improve rural health care services, although the details may differ considerably. The remainder of the report examines in detail the issues faced by rural facilities providing health services and by physicians and other rural health personnel. To provide examples of how these issues may play out, it also discusses in more depth two specific groups of services: maternal and infant health services and mental health services.

Although the affordability of health care is an important factor in access to care by rural residents, the fundamental issue of uninsured populations and uncompensated care is beyond the scope of this report, since it encompasses the urban as well as the rural health care system and has broad ramifications. Moreover, even if it were possible to enable all patients to adequately compensate providers, policymakers would still find it necessary to consider measures to overcome the special access problems of underserved areas and populations. Thus, the report does not discuss in depth either health insurance coverage or health care financing. Instead, it considers these factors in terms of their influence on the availability and financial viability of providers.

Two other important issues are also beyond the scope of this report. First, the importance of rural health care providers as sources of employment and income is not addressed here, although it is a vital issue in many rural communities. Second, this report does not examine the quality of rural health care in any detail, although it is clear that the quality implications of rural health interventions deserve scrutiny. But such an examination would have to proceed with care. By necessity, an evaluation of the quality of a service provided in rural areas must be measured against the implications of having no locally available service at all.

PROBLEMS AND CONSIDERATIONS IN RURAL HEALTH CARE

The Health and Health Care Access of Rural Residents

During this century, the rural population has become an increasingly smaller proportion of the total U.S. population (figure 1-1). As of 1988, about 23 percent of the U.S. population lived in nonmetropolitan (nonmetro) counties (*631*). About 27 percent of the U.S. population lives in "rural" areas as defined by the Census Bureau (places of 2,500 or fewer residents) (*632*), and slightly more than 15 percent of the population is rural by both definitions.[3] **Throughout this report, "rural" refers to nonmetro areas unless otherwise stated.**

Rural residents are characterized by relatively low mortality but relatively high rates of chronic disease. After accounting for expected differences

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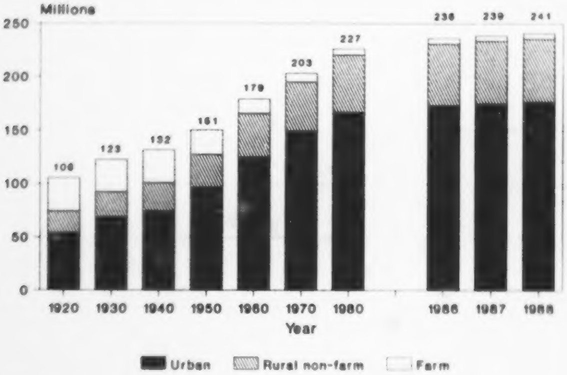
[1] Two other reports prepared in connection with this assessment have already been published: *Defining "Rural" Areas: Impact on Health Care Policy and Research* (released July 1989), and *Rural Emergency Medical Services* (released November 1989).

[2] The report does not examine issues relating to the Indian Health Service (IHS) or health-care access for Native Americans who receive their care from the IHS. Previously published OTA reports examined these issues in detail (*616,624*).

[3] See the related OTA staff paper for a detailed discussion of the implications of different definitions of "rural" and the applications of these definitions (*255*).

Figure 1-1—U.S. Rural and Rural Farm Population, Selected Years, 1920-88



[a] Based on the Census Bureau's definition of the rural population.

[b] The rural population figures from 1950 on reflect definitional changes. Had the previous definition been used, the 1950 rural population would have been 60,948,000, or 40 percent of the total U.S. population.

SOURCE: Office of Technology Assessment, 1990. Data from U.S. Department of Commerce, Bureau of the Census, jointly with the U.S. Department of Agriculture, "Rural and Rural Farm Population: 1988," *Current Population Reports*, Series P-20, No. 439 (Washington, DC: U.S. Government Printing Office, September 1989).

due to age, race, and sex distributions between urban and rural areas, mortality rates in rural areas are 4 percent lower than in urban areas (*626*). Two notable exceptions exist: in rural areas, infant mortality is slightly higher (10.8 *v.* 10.4 per 1,000 infants), and injury-related mortality is dramatically higher (0.6 *v.* 0.4 per 1,000 residents). Chronic illness and disability, on the other hand, affect a greater proportion of the rural than the urban population (14 *v.* 12 percent) (*651*).[4] There is little overall difference between urban and rural residents in rates of acute illness.

Rural populations are unique in the extent of physical barriers they may encounter when obtaining health care. Even in relatively well-populated rural areas, the lack of a public transportation system and the existence of few local providers to choose from can make it difficult for many rural residents to reach facilities where they can receive care. *And persons living in low-density "frontier" counties—counties of six or fewer persons per square mile—can have geographic access problems of immense proportions.* In these counties, predominantly located in the West, there is insufficient population density in many areas to adequately support local health services.

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Photo credit: Peter Beeson

Farming communities were especially hard-hit by economic slowdowns during the early 1980s.

Economic barriers prevent many rural residents from receiving adequate health care and often outweigh strictly physical barriers. Rural residents have lower average incomes and higher poverty rates than do urban residents, and one out of every six rural families lived in poverty in 1987 (*629*). While some rural areas have prospered (e.g., areas that have become retirement havens), areas whose economies are based on farming and mining suffered real decreases in per capita income during the first half of the 1980s (*106*). Still other rural areas have been pockets of poverty for decades. These areas of persistent poverty are heavily concentrated in the South, where 25 million of the Nation's 57 million rural residents live, and where 4 out of every 10 rural residents are poor, elderly, or both (*633*).

Rural residents are much more likely than urban residents to have no health insurance coverage (18.2

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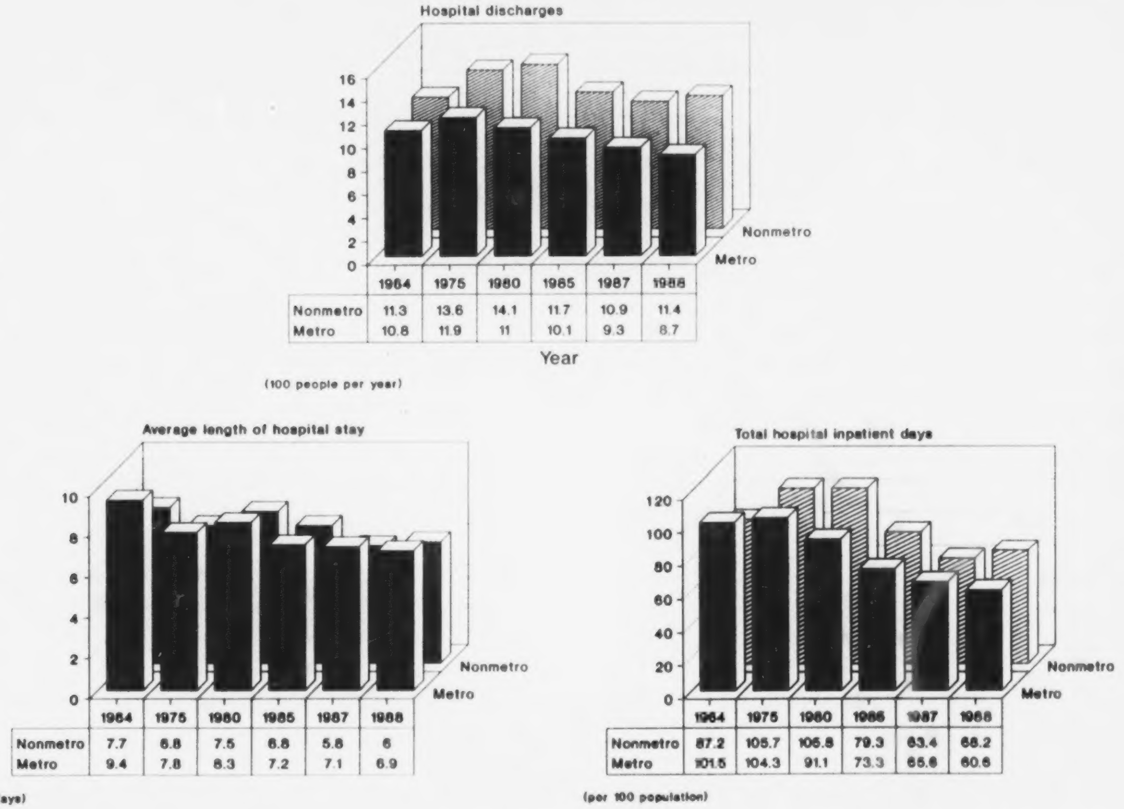
[4] These figures are age-adjusted and therefore cannot be explained by a greater proportion of elderly residents in rural areas.

Figure 1-2—Trends in Hospital Utilization by Metropolitan and Nonmetropolitan Residents, Selected Years, 1964-88



NOTE: Numbers are adjusted for age (i.e., account for differences in age distributions between metro and nonmetro areas). These data are based on interviews and thus include only patients who were discharged alive.

SOURCE: Office of Technology Assessment, 1990. Data from U.S. Department of Health and Human Services, Centers for Disease Control, National Center for Health Statistics, *Health, United States, 1982, 1988, and 1989* (Washington, DC: U.S. Government Printing Office, March 1983, March 1988, and March 1989).

v. 14.5 in 1986) (*651*).[5] Among persons with incomes below the Federal poverty level, rural residents are less likely than urban residents to be covered by Medicaid (35.5 *v.* 44.4 percent in 1987) (*530*).

Health care utilization trends in rural areas have paralleled those in urban areas. Over time, people in both areas have increased the number of physician visits per person, although rural physician utilization remains below that for urban residents. Hospital inpatient utilization by both urban and rural residents has declined (figure 1-2). Rural residents, however, still report more admissions and shorter hospital stays than do urban residents (*651*).[6]

The Availability of Rural Health Care

Rural health care availability in 1990 is better in many ways than that of 20 years ago. After years of hospital construction, the ratio of community hospital beds to population is now about the same in rural as in urban areas (4.0 and 4.1 per 1,000 residents,

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[5] Includes only persons under age 65.

[6] Information on average length of hospital stay (ALOS) is available both from hospital reports (which include patients discharged dead) and from patient interviews. Until very recently, both ALOS in rural hospitals and ALOS reported by rural residents were lower than for their urban counterparts. Since 1987, rural hospitals have actually reported slightly higher ALOS than urban hospitals, although rural residents still report lower ALOS in interview data.

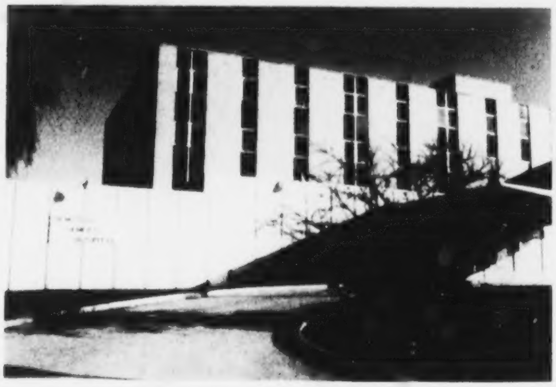

Photo credit: Peter Beeson

Not all rural hospitals that have closed in recent years have been small. Memorial General Hospital, a 256-bed facility in Elkins, West Virginia, closed in the mid-1980s.

respectively, in 1986). Federally funded community and migrant health centers (C/MHCs) provide subsidized care to poor residents through nearly 800 service sites in rural communities. Physician supply has been increasing for many years in both rural and urban areas; one out of every 440 people in the United States is now a physician.[7]

Nonetheless, the future prospect for rural health care in the absence of intervention is grim. *Rural America cannot support its present complement of hospitals, and the hospitals are going broke.* By 1987, rural hospitals as a group had higher expenses than patient care revenues, and small rural hospitals had higher expenses than revenues from all sources. Hospitals faced with continuing financial difficulties and no alternative forms of survival will continue to close, including some facilities that are the only reasonable source of care in their communities. Rather than drawing local patients back to local care, many small community facilities will continue to lose wealthier patients to more distant urban hospitals and clinics. Local facilities will be left to contend with low occupancy rates and a high proportion of patients who cannot pay the full costs of their care. A lack of incentives and models for developing appropriate networks of care may result in an increasingly fragmented health service delivery system.

Rural areas are finding it increasingly difficult to recruit and retain the variety of qualified health personnel they need. In some isolated and ''unattractive'' areas, an absolute lack of providers may become a chronic situation. The number of areas designated by the Federal Government as primary care Health Manpower Shortage Areas (HMSAs) has not changed significantly since 1979. *And in 1988, 111 counties in the United States, with a total population of 325,100, had no physicians at all (665).* Half a million rural residents live in counties with no physician trained to provide obstetric care; 49 million live in counties with no psychiatrist. States overwhelmingly rate health personnel shortages as a top problem area and a top focus of State rural health activities (*627*).

No single strategy is appropriate to all rural areas or all health care providers. Rural North Dakota is not the same as rural Mississippi. Rural health problems and issues vary dramatically by region, State, and locality. The success of strategies to address these problems will also vary, and some strategies that are vital to a few communities may offer little to others. Furthermore, even in a single State or locality, multiple approaches are more likely than single strategies to obtain results.

The Federal Government cannot fix all rural health problems. It cannot force community consensus, or create new structures directly adapted to local needs, or overcome all State-level barriers to change. But it can create an environment that facilitates these activities, it can furnish the information States and communities need to know before undertaking them, and it can be the catalyst for great improvements in the rural health care system.

The Federal Role in Rural Health

The States are heavily dependent on the Federal Government for assistance in maintaining and enhancing rural health care resources; nearly one-half (44 percent) of their resources for rural health activities (e.g., personnel recruitment) come from Federal sources (*627*). Federal health insurance programs such as Medicare are a large additional Federal investment in rural health care.

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[7] This number is calculated from table 1-2, which includes only MDs. The number would be even greater if doctors of osteopathy were included.

The bulk of the Federal role in rural health is carried out through four different types of programs.[8] First are health care financing programs—most notably, Medicare and Medicaid—which pay directly for health care services. Both programs differentiate in a number of ways between rural and urban providers and payment to those providers. Both programs also include special exemptions to general payment rules for certain rural facilities and services (e.g., physician services provided in certain HMSAs).

Second is the health block grant, under which the Federal Government allocates funds to States to spend on any of a variety of programs in a general topic area. Three major block grants influence rural health services: the Maternal and Child Health block grant; the Preventive Health and Health Services block grant; and the Alcohol, Drug Abuse, and Mental Health block grant.

Third are Federal programs for which enhancing rural health resources is an explicit goal. Box 1-A presents some major programs in this category.

A fourth critical Federal activity is that of coordinating, undertaking, and funding research on rural health topics. Major Federal agencies involved in this activity are the Office of Rural Health Policy (ORHP) and the Agency for Health Care Policy and Research.

Box 1-A—Federal Programs To Enhance Rural Health Resources

Federal rural health resource programs include:

- *the National Health Service Corps,* which (in addition to having some commissioned members) provides placement services, scholarships, and educational loan repayment for physicians and certain other health professionals willing to serve in certain designated HMSAs;
- *programs that provide grants to schools educating and training primary care providers* (e.g., family practitioners, physician assistants, and nurses);
- *the Federal Area Health Education Centers program,* which links medical centers with rural practice sites to provide educational services and rural clinical experiences to students, faculty, and practitioners in a variety of health professions;
- *the Community and Migrant Health Centers grant programs,* which are the Federal Government's most prominent activities to promote primary health care facilities in rural areas;
- *Primary Care Cooperative Agreements,* through which the Federal Government assists States that are assessing needs for primary health care and developing plans and information to address those needs; and
- *the Rural Health Care Transition Grant program,* established in 1988, which provides grants to small rural hospitals for strategic planning and service enhancement.

A major challenge in designing Federal rural health policies is to identify those areas where residents' access to basic health care is sufficiently endangered to justify special protective measures. Endangered areas—those with chronic shortages of health personnel, for example—require special attention and ongoing subsidies of providers in order to ensure a basic level of adequate health care to area residents. Although the present HMSA and Medically Underserved Area (MUA) designations have shortcomings, *the basic concept of designating areas of personnel shortage and areas of poor health is sound. Extending this concept to encompass rural hospitals and other facilities would enable more appropriate targeting of Federal health funds to needy rural areas.*

Many rural areas are prospering and have sufficient health resources, although these resources may not always be available or provided in an efficient manner. Others have temporary health care problems, and in still other areas health providers face financial crises because they are losing their most lucrative patients to urban hospitals and physicians. *In rural areas without critical and chronic problems of endangered access, Federal policies are more appropriately oriented towards measures to enhance the capabilities of providers, encourage their adaptation to changes in the health care environment, and ensure consistent and fair payment policies.* Appropriate measures may include technical assistance, occasional and temporary financial assistance, targeted financial incentives, and indirect supports.

A secondary problem for Federal rural health policies has been how to identify areas that require special protection, while accommodating the tremendous diversity in rural health issues and prob-

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[8] Some other Federal programs also may play a significant role in promoting the health of rural residents (e.g., the Women, Infants, and Children food distribution program of the Department of Agriculture), but those programs are not detailed here.

Photo credit: Gail Mooney

Eight-bed Comfrey Hospital, Minnesota's smallest hospital, includes an operating room, outpatient clinic, and 24-hour emergency room.

lems in different areas of the country. *Effective targeting of Federal resources to rural areas requires the involvement of the States.* State involvement includes not only enlisting the assistance of State and local agencies in identifying critical areas but enabling States and localities to adopt and adapt programs tailored to their own needs. Nearly one-half of States—21 of 44 States responding to an OTA survey—already rely on their own designation criteria instead of (or in addition to) Federal criteria for identifying underserved areas.

The enormous diversity across States in rural health problems suggests that it is also appropriate to maintain a strong State role in designing and implementing solutions. But State capabilities to carry out this role successfully vary considerably. Federal coordination, technical assistance, and information are crucial to States and communities trying to address their rural health needs.

RURAL HEALTH SERVICES: ISSUES AND OPTIONS

Issues

The 1980s brought major changes to the Nation's rural community hospitals, as medical practices, technologies, and payment systems all acted to replace inpatient procedures with outpatient care and as remaining inpatient care became increasingly sophisticated. Both rural and urban hospitals witnessed substantial declines in inpatient utilization (table 1-1). Changes in rural hospitals, however, were especially dramatic. Rural hospital occupancy rates[9] in 1988 were only 56 percent, compared with over 68 percent for urban community hospitals (*35*). With lower inpatient admissions, rural hospitals have become more dependent on outpatient and long-term care revenue. By 1987, nearly one-half (46 percent) of rural hospital surgery was performed on outpatients. One-fourth of rural hospitals have long-term care units, and in these hospitals long-term care beds make up nearly one-half of the total beds (*625*).

These major declines in inpatient utilization, compounded by increasing amounts of uncompensated care, have undermined the financial health of many rural hospitals. From 1984 to 1987, the amount of uncompensated care delivered by rural hospitals increased by over 26 percent, to an average of more than $500,000 per hospital by 1987 (*30*). Nonpatient sources of revenues—in many cases, tax subsidies—have become increasingly important to hospitals' financial viability. By 1987, nearly all rural hospitals had higher costs than patient care revenues; the smallest hospitals had costs higher than revenues from all sources (*625*).

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[9] These occupancy rates are based on total hospital beds, including long-term care beds.

Table 1-1—Characteristics of Metropolitan and Nonmetropolitan Community Hospitals, 1984-88

Characteristic	Year					Percent change 1984-88[a]
	1984	1985	1986	1987	1988	
Number of hospitals						
Metro	3,063	3,058	3,040	3,012	2,984	-2.6%
Nonmetro	2,696	2,674	2,638	2,599	2,549	-5.5
Average number of beds/hospital						
Metro	256	252	248	246	246	-3.9
Nonmetro	86	86	85	83	83	-3.5
Total number of beds						
Metro	784,311	771,807	754,953	741,391	734,073	-6.4
Nonmetro	232,746	228,871	223,422	216,921	212,624	-8.6
Total admissions (millions)						
Metro	27.7	26.6	26.0	25.6	25.6	-7.7
Nonmetro	7.5	6.8	6.4	6.0	5.9	-21.0
Occupancy rate (percent)						
Metro	71.5	67.5	67.0	67.7	68.4	-4.3
Nonmetro	60.7	56.0	55.1	55.3	55.7	-8.2
Average length of hospital stay (days)						
Metro	7.4	7.1	7.1	7.2	7.2	-2.7
Nonmetro	6.9	6.8	7.1	7.3	7.4	7.2
Total number of inpatient days (millions)						
Metro	205.0	189.9	184.5	183.3	183.6	-10.4
Nonmetro	51.7	46.7	44.9	43.8	43.3	-16.1
Total outpatient visits (millions)						
Metro	173.1	178.9	189.0	198.5	217.3	25.5
Nonmetro	38.8	39.8	42.9	47.0	51.8	33.5
Total emergency visits (millions)						
Metro	57.3	58.4	59.9	61.2	63.6	10.9
Nonmetro	15.7	16.1	16.7	17.1	17.7	12.8
Outpatient surgeries as a proportion of total surgeries						
Metro	28.1	34.5	39.9	43.4	46.2	64.4
Nonmetro	26.3	34.7	42.1	45.9%	49.8	89.3

[a] Numbers in this table do not correspond exactly to the percentage change in every case due to rounding of some table entries. See tables in ch. 5 for more detailed data.

SOURCE: American Hospital Association, Hospital Statistics (Chicago, IL: 1985-89 eds.).

Nearly three-fourths of rural hospitals have fewer than 100 beds (figure 1-3). *These small hospitals are in particular difficulty; they have the fewest admissions, the lowest occupancy, and the highest expenses per inpatient day of all rural hospitals* (*625*).

Despite these trends, rural areas in general are still well-supplied with hospitals. In 1986, the ratio of community hospital beds to population was about the same in rural as in urban areas; in 14 States, bed-to-population ratios were higher in rural areas (*382*). Most rural hospitals are within a reasonable distance of another hospital (over 80 percent are within 30 miles), but extreme regional differences exist; for example, hospitals are much farther apart in the less densely populated West (*589*).[10] Although the mid-1980s witnessed a 5.5 percent decline in the number of rural hospitals (table 1-1), most hospitals that have closed in recent years have been small facilities with low occupancy rates (*692,693*). Most communities in which hospitals closed appear to

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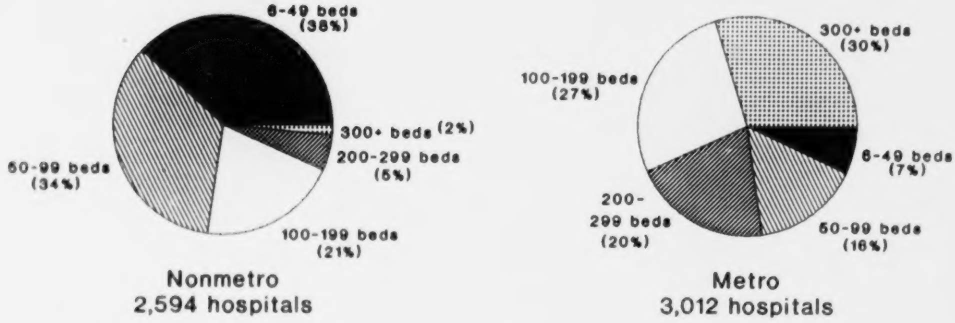
[10] Eleven percent of rural hospitals are located in "frontier" counties (*625*).

Figure 1-3—Distribution of Community Hospitals[a] in Metropolitan and Nonmetropolitan Areas, 1987



Nonmetro
2,594 hospitals

Metro
3,012 hospitals

[a]OTA's definition of community hospital differs slightly from the definition used by the American Hospital Association (see app. D for explanation of differences.)

SOURCE: Office of Technology Assessment, 1990. Data from the American Hospital Association's 1987 Annual Survey of Hospitals.

continue to have reasonable access to emergency and acute care.

In fact, *one of the greatest problems rural hospitals face is the outmigration of rural residents to urban areas for care*. Studies suggest that rural residents (especially young and affluent residents) have been increasingly seeking care outside their own communities, either to obtain specialized care not available locally or to obtain alternatives to locally available services (*102b,134,237,590*).

Problems faced by publicly funded facilities that provide primary care services are somewhat different from those faced by hospitals. From 1984 to 1988 the number of rural C/MHC service sites remained relatively constant, but patient visits to rural C/MHCs rose nearly 19 percent during this period (*658*). Most of the increase in utilization appears to be by rural residents unable to pay the full costs of their care. *By 1987, nearly one-half of all rural C/MHC users received discounted care*. Moreover, Medicaid-reimbursed visits constitute an increasing proportion of revenues, while the proportion of revenues from private pay patients has decreased (*658*). Consequently, C/MHCs remain heavily dependent on Federal grant funds, which make up nearly one-half of total revenues.

Despite their heavy Federal dependence, rural C/MHCs receive 15 percent less Federal funding per patient served than do their urban counterparts (*272*). Factors such as differences in the complexity of care patients require may explain some of the difference in funding but have not been studied in detail.

Rural health care facilities have a number of options in adjusting to recent changes in the health care and fiscal environment, ranging from short-term options such as staff consolidation and reduction to longer term strategies such as diversification and participation in multifacility alliances. But many rural facilities have not successfully applied these strategies.

One major barrier to the successful implementation of strategies is simple lack of community and provider will, particularly in cases where groups have differing views on appropriate actions. But even when providers have a firm direction and committment, they can be stymied by a lack of information on the success of alternative possible strategies, and the lack of community and provider

EMERGENCY
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Photo credit: Tim Henderson

Great distances in areas of sparse population can limit the availability of even the most basic local rural health services.

technical expertise and financial resources to undertake strategic planning and other important steps. Other especially important structural barriers can include:

- *standards and requirements for Rural Health Clinics (RHCs) and C/MHCs,* including delays in the RHC certification process and C/MHC efficiency standards that may be difficult for small or isolated C/MHCs to meet;
- *regulations to prevent fraud and abuse* that may inhibit hospitals from engaging in some actions that would encourage physicians to practice in a rural area;
- *State licensure restrictions* that prevent hospitals from reducing the scope of services (e.g., converting to a facility that offers only emergency, subacute, and primary care); and
- *restrictions on public hospital activities* that prevent the 42 percent of rural hospitals that are publicly owned from providing services not expressly or implicitly permitted by their enabling statutes.

Federal intervention will have limited effect on some of these barriers. But the Federal Government can avoid policies that send contradictory messages to rural providers. For example, it may be appropriate for many rural hospitals with low occupancy rates to reorient their services to place more emphasis on outpatient care. Any changes in Federal payment policies for ambulatory surgical services that assumed an unrealistically low cost of providing such services, however, might dissuade these hospitals from making appropriate changes. Unintentional disincentives could be minimized by performing a detailed analysis of the impact of any proposed new payment system on rural providers before adopting such a system.

In addition to evaluating potential new health policies for their impact on rural facilities, the Federal Government could take a number of specific steps to identify and protect essential rural health services, and to enhance the abilities of all rural providers to respond appropriately to changes in the health care and economic environment. Options for undertaking these steps are presented below.

Options for Congressional Action

Identifying and Supporting Essential Rural Health Facilities

In some rural areas, particularly those with high poverty or very low population density, a single facility may be the only provider of some of the community's vital services. At a minimum, these vital services include basic emergency, primary, acute, and long-term care.

At present there are several programs aimed at identifying (and supporting) facilities providing one or more of these services, specifically the C/MHC grant programs and Medicare's payment exceptions for designated RHCs, Sole Community Hospitals (SCHs), Essential Access Community Hospitals, and Rural Primary Care Hospitals. The assumption of each of these programs is that Federal subsidies or special exceptions to payment rules will enable services to be provided to populations whose health care access might otherwise be severely impaired. Existing programs, however—most notably the SCH program—imperfectly identify these facilities. Furthermore, each program has its own unique criteria that may not be relevant to other applications. One potential direction for Federal policy is to undertake a more concerted effort to identify (option 1) and protect (suboptions 1A-1C) a broad range of essential facilities.

Option 1: Develop criteria to identify health facilities that provide essential emergency, primary, acute, and long-term care in specified rural areas, and develop programs to provide support for these facilities.

The Department of Health and Human Services (DHHS) could be directed, with assistance from the States, to make a comprehensive effort to develop criteria that could be used to designate essential facilities and services, which would then be eligible for a variety of Federal and State protections. Criteria could distinguish among facilities for which no reasonable alternatives exist, facilities for which alternatives exist but are more distant or otherwise less accessible, and all other facilities. Programs using the facility designations thus might be applied to either the most narrowly or the more broadly defined group of "essential" facilities.

Designation criteria for essential facilities might include:

- distance/time to nearest comparable and nearest higher level service or facility, considering geographical and transportation limitations;
- level of medical underservice and indigence of the area population;
- institution's area market share and measures of community acceptance (e.g., utilization patterns);
- evidence of plans or actions by the facility to serve critical unmet needs of the local community; and
- other relevant factors (e.g., number of Medicare beneficiaries served).

From the State perspective, Federal criteria often seem inflexible and not adaptable to relevant local conditions. *To minimize this problem, the development of designation criteria should include the input and active involvement of State governments.* State flexibility would be further enhanced by the establishment of:

- *minimum criteria* to aid the Federal Government in basic and fair allocation of funds among States; and
- *less restrictive criteria* to enable States to use and modify the designations for their own purposes, and to enable more flexibility in the application of Federal programs to variously identified facilities.

Some of the difficulties of applying detailed criteria from the perspective of the Federal Government could be avoided by requiring States to actually apply the criteria and make the designations (see option 2). The Federal role could be restricted to technical support and assistance, reviewing and approving designations and affirming that the designated facilities were eligible for relevant Federal programs. Facilities, once designated, could also be periodically "recertified" in order to remove those facilities no longer meeting the criteria.

Option 1A: Provide direct grants and subsidies to eligible facilities.

These could include:

- *Time-limited subsidies* to maintain operations, and to plan and implement strategies to change the scope or delivery of services (e.g., 1- to 3-year grants through an expanded Rural Health Care Transition Grant Program).
- *Continued grant support and/or special alterations in public sources of reimbursement* to maintain and enhance operations for facilities deemed unable to achieve self-sufficiency due to isolation or high levels of unreimbursed care. For example, designated hospitals could continue to receive reimbursement exceptions under the Medicare program. Alternatively, the SCH exception could be phased out altogether, and general subsidy grants analogous to those provided to C/MHCs could be made available to all eligible hospitals, separating the subsidies from the Medicare program.

Option 1B: Require the Farmers Home Administration (FmHA), the Department of Housing and Urban Development (HUD), and other Federal agencies to give special attention to the needs of essential rural health facilities when making available loans to institutions for capital improvement.

Many essential rural hospitals and clinics may lack adequate access to capital for diversifying services and converting facilities to other functions. Many of these providers' basic facilities and equipment also may need upgrading to maintain quality of care and conform to Federal and State regulations. Increased availability of capital through FmHA direct and guaranteed loans and HUD loan guarantee programs could help to ensure the financial stability and presence of these facilities.

Option 1C: Protect essential facilities from Federal fraud and abuse regulations that inhibit their ability to recruit and retain physicians or to be acquired by physicians.

Close organizational association with physicians may be the only financially feasible strategy for long-term survival for some rural facilities, and for essential facilities the benefits of financial stability may sometimes outweigh the dangers of potential conflicts of interest. A specified "safe harbor" from fraud and abuse regulations, or a legislative exemption to these laws, could provide for the arrangements these facilities might make to ensure the availability of a local physician (e.g., free onsite office space). In addition, specified "safe harbor" practices could encompass the purchase of small, failing hospitals by local physicians wishing to ensure the availability of this resource. Whole or partial physician ownership of health care facilities may be an especially attractive option in the case of small "alternative licensure" facilities that provide mostly primary, emergency, and subacute care.

To guard against abuse of this exemption, restrictions could specify that incentives be independent of the number of patients the physician refers to the facility, or that a facility wishing to acquire a physician practice could not exclude other local physicians from its staff. Also, facilities could be precluded from listing recruitment and retention costs on their Medicare cost reports.

Option 2: Provide assistance to States to help them identify essential facilities, remove regulatory barriers applying to these facilities, and offer State-based financial support to a more flexible set of designated facilities.

Option 2A: Provide time-limited (1- to 3-year) grants for the development of State-designated offices of rural health to enable States to better support rural health efforts.

The Federal ORHP is an important part of the Federal effort to assess rural health program needs and respond to information needs. Organizations that can carry out equivalent duties at the State level are likewise important. As of February 1990, 19 States had instituted (and 5 more had plans for) State-designated offices of rural health (*426,627*). (Locations of existing offices were almost evenly divided between State agencies and nonprofit organizations.) Thirty-four States reported the existence of legislative or executive task forces or committees to address State rural health issues (*627*). Thirteen States, however, have neither an office of rural health nor a State rural health task force.

Option 2B: Provide time-limited or ongoing grants to States to help them undertake specific activities relating to essential and other rural health facilities.

Such grants could enable States to:

- identify and designate essential facilities and services;
- monitor the financial condition of essential facilities and services, protect against undesirable closure, and examine the comparability and acceptability of the nearest health care facilities;
- provide technical assistance to enhance leadership and management skills, support strategic planning, encourage reconfiguration of services and cooperative affiliations with other institutions, and recruit critical staff;
- help subsidize existing statewide capital financing sources and/or uncompensated care pools, making them more accessible to essential facilities;
- encourage special local tax initiatives and the creation of health service districts, where appropriate, to maintain and expand services;
- study the impact of Federal and State regulations on essential facilities, disseminate information clarifying State and Federal regulatory requirements, and develop model State legislative and regulatory language; and
- identify areas without access even to essential primary and other care facilities, and provide funds to establish new facilities in these areas.

Encouraging Comprehensive and Coordinated Rural Health Care

Rural patients and providers are often both physically and professionally isolated. As a result they may be unable to obtain consultation and information and unaware of appropriate alternative sources of care. They may receive little feedback and few resources from regional providers.

Option 3: Award small Federal grants to projects whose goal is the development of model rural health care networks.

Short-term demonstration and development grants could be awarded by DHHS to States or nonprofit organizations to:

- identify special basic care need areas in geographically remote and persistent poverty com-

munities, identify minimum service needs, and create and evaluate the effectiveness of service networks in those areas;
- identify regional needs and service resources for comprehensive and integrated care in regions *not* designated as special basic care need areas, and create and demonstrate integrated care networks in those regions; and
- develop regional referral networks for specific services and population groups needing particular attention, using (and expanding) the perinatal network model.

Some aspects of this option are already in place; for example, under Primary Care Cooperative Agreements, States can receive funds to help identify needs in underserved areas. Private organizations, however, cannot receive funds directly at present for this purpose.

As an alternative to a new funding program, the Rural Health Care Transition Grant program could be expanded. A proportion of these grant funds could be directed specifically to funding for consortia of hospitals and other providers wishing to develop model arrangements for transferring and referring patients, and for enhancing local care through periodic specialty clinics and continuing education seminars.

Longer Term Assessment of the Future of the Rural Health Care Delivery System

Innovative responses to existing barriers to change include measures to modify State hospital licensure laws to permit the operation of facilities that provide less than full-service hospital care. Two examples are Montana's Medical Assistance Facilities and California's proposal for basic facilities whose license category would depend on the extent of services they offer. The Federal Government has taken similar steps with the enactment of the Omnibus Reconciliation Act of 1989 (Public Law 101-239), which permits Medicare payment to small rural facilities that are designated Rural Primary Care Hospitals (RPCHs) in a limited number of States. But the RPCH is not necessarily the only or the best model for all rural areas, and the ability of other facility models to be eligible for Medicare and Medicaid payment remains highly uncertain.

The need for such "alternative licensure" facilities, the variety of proposals, and the potential importance of these facilities to the rural health care system warrant a comprehensive and ongoing analysis to ease their incorporation into the system. Adapting the system to accommodate these facilities introduces a myriad of questions: how to pay for the services they provide, how to integrate them into a comprehensive and coordinated system of care, and how to ensure that they continue to provide services vital to their communities. Answering these questions requires the input and coordination of information from a variety of Federal and State agencies.

The recently established ORHP and the National Advisory Committee on Rural Health were created, in part, to address such issues. At present, ORHP has a very small staff and a wide range of responsibility; the Advisory Committee considers a similarly broad range of issues and meets only four times each year. These limitations at present prevent an immediate, intense examination of the structure of the rural health care system.

Option 4: Establish a short-term (18-24 month) advisory task force whose purpose is to examine the future of rural health delivery systems and to provide guidance on the implementation of new service delivery structures.

Ideally, the task force, comprising both public- and private-sector experts in rural health and health care financing, would meet frequently and would advise DHHS and Congress. It could be coordinated with the current Advisory Committee—for example, by having representatives from the Advisory Committee serve as part of the short-term task force. The task force could be staffed by an augmented ORHP to eliminate duplication of effort.

The immediate objectives of the task force could include:

1. assisting DHHS in the development of criteria for identifying essential facilities (see option 1);
2. developing guidelines under which projects may demonstrate the feasibility of alternative facility and service delivery models and (if necessary) obtain waivers from Medicare and Medicaid certification requirements;
3. expanding and coordinating discussion on potential methods of payment to these facilities (e.g., prospective payment groups, integrated payment for physician and hospital services); and

4. providing directions for research and demonstration efforts supporting the development of model service delivery networks in rural areas (see option 6).

To ensure that the recommendations of the task force could be implemented, DHHS would need to maintain or develop complementary expertise. For example, DHHS staff might need to be able to:

- compile, analyze, and make available information on existing efforts to develop model service structures and networks;
- help States and local communities to identify regional needs and determine standards for acceptable access to comprehensive services; and
- participate in the development of both new projects to demonstrate innovative service and facility categories in rural areas (e.g., subacute care facilities) and networks involving such providers.

Addressing Information Needs

Option 5: Expand basic research on access to health care in rural areas.

Specific topics that DHHS could be encouraged or mandated to study include:

- Nationwide migration patterns of rural residents for health services outside their local communities, why they occur, and their impact on the economic viability of local health services (particularly obstetrics services).
- How travel distances and transportation limitations affect access to hospital care in rural areas.
- The costs to rural hospitals, under different conditions, of restructuring their organization and services in various ways (e.g., capital, operating, and regulatory costs of downsizing hospitals to alternative delivery models).
- The availability, accessibility, and general operating characteristics of rural C/MHCs, particularly those in persistent poverty and frontier regions; special problems these centers face; whether these centers are able to provide a sufficient scope of care, particularly obstetrics care; and how critical they are as a source of primary care.

Option 6: Expand funding to the Office of Rural Health Policy to administer an extended clearinghouse of information on innovations and successes in rural health delivery.

Many States and communities would like to investigate and implement improved forms of health service delivery but do not have, and are unable to purchase, the necessary knowledge and expertise. The Federal Government has a unique capability to act as a central point for information collection and dissemination. In addition, the Federal Government has an interest in providing assistance relating to State and local implementation of current programs in order to enhance the effective use of Federal funds.

ORHP's current efforts to develop an information clearinghouse could receive supplemental support to:

- contract researchers to develop extensive case studies of various rural service delivery innovations;
- work closely with private groups funding innovative rural health delivery demonstration projects to document and disseminate information on project activities and findings; and
- routinely analyze information collected on innovative strategies, identify those that appear to have the broadest benefit and transferability, and identify factors that will affect their applications in other areas.

RURAL HEALTH PERSONNEL: ISSUES AND OPTIONS

Issues

Availability of Personnel[11]

Physicians—Physicians have historically been the cornerstone of the health care system, and physician supply has been increasing for many years in both rural and urban areas (table 1-2) (*673*). Despite the overall increase, however, rural areas have fewer than one-half as many physicians providing patient care as urban areas (91 *v.* 216 per 100,000 residents in 1985) (table 1-2) (*673*). In the least populated counties (those with fewer than 10,000 residents), there are only 48 physicians for every 100,000 people—about one physician for every

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[11] This report did not examine the availability of chiropractors or podiatrists.

Table 1-2—Physician-to-Population Ratios (MDs only) by County Type and Population, 1979 and 1988[a]

	1979	1988	Percent change, 1979-88
Total MDs per 100,000 residents[b]			
Metro	219.3	262.6	19.7
Nonmetro	87.2	108.5	24.4
50,000 and over	116.3	146.7	26.1
25,000-49,999	86.8	106.2	22.4
10,000-24,999	62.0	74.7	20.5
0-9,999	48.6	58.2	19.6
U.S. total	188.4	227.7	20.9
Patient care MDs per 100,000 residents[b]			
Metro	174.3	215.6	23.7
Nonmetro	73.3	90.5	23.5
50,000 and over	97.5	122.2	25.3
25,000-49,999	73.3	89.9	22.6
10,000-24,999	52.0	61.3	17.9
0-9,999	40.5	47.5	17.4
U.S. total	150.7	187.2	24.3

[a] MD data for 1988 are as of Jan. 1. Prior to 1988, data are as of Dec. 31.

[b] 1987 population estimates were used to calculate 1988 MD ratios. Prior to 1988, population estimates used were for the same year as MD data.

SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Office of Data Analysis and Management, Rockville, MD, unpublished data from the Area Resource File system provided to OTA in 1989 and 1990.

Table 1-3—Availability of Primary Care Physicians by County Type and Population, 1988[a]

	Primary care physicians[b]	
	Number per 100,000 residents	Proportion of all active physicians[c]
Metro	86.8	38%
Nonmetro	55.3	57
50,000 and over	61.8	48
25,000 to 49,999	56.1	58
10,000 to 24,999	48.5	71
5,000 to 9,999	45.9	81
2,500 to 4,999	43.4	82
Fewer than 2,500	25.6	78
U.S. total	79.7	40

[a] Includes Jan. 1, 1988 MD data and 1987 DO data.

[b] Primary care physicians include professionally active MDs in general/family practice, internal medicine, pediatrics, and obstetrics/gynecology; and all doctors of osteopathy in patient care.

[c] Professionally active physicians include physicians in research, administration, and teaching, and physicians in Federal service.

SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Office of Data Analysis and Management, Rockville, MD, unpublished data from the Area Resource File System provided to OTA in 1989 and 1990.

2,000 residents. Over 100 U.S. counties have no practicing physicians at all (*665*).

The availability of primary care physicians in rural areas is of particular concern. Primary care physicians make up well over one-half of all physicians who provide patient care in rural areas (table 1-3), but these areas are increasingly competing with urban practices (such as those associated with health maintenance organizations) for primary care physicians. Osteopathic physicians (DOs), who constitute about 9 percent of the total U.S. physician population, make up a large proportion of rural primary care physicians. In small rural counties in some States, as many as three-fourths of the physicians are DOs (*318*).

Midlevel Practitioners—Nurse practitioners (NPs), physician assistants (PAs), and certified nurse-midwives (CNMs) have become important medical care providers in rural areas and are the only licensed providers of primary health care in some areas with no physicians. Their small numbers are increasing, although there appears to be a very gradual trend toward specialization and urban practice even for these practitioners. The distribution of midlevel practitioners varies enormously by State; these professionals are most likely to be found in States with midlevel practitioner schools and in States that permit more independent practice.

Certified registered nurse anesthetists (CRNAs) are another midlevel profession that is especially important to small rural hospitals that wish to provide basic surgical services but cannot support or attract physician anesthetists. The national supply of CRNAs, however, appears to be in decline.

Nurses—Rural hospitals have markedly fewer registered nurses (RNs) and lower ratios of RNs to licenced practical/vocational nurses than do their urban counterparts (*671*). The proportion of RNs who work in rural areas has decreased in recent years, and rural areas will probably continue to be at a disadvantage when competing for the shrinking national supply of nurses.[12] On average, nurses in smaller rural counties are considerably older than other nurses and are less likely to have baccalaureate nursing degrees, making upgrading to midlevel degrees (e.g., NP) more difficult.

Dentists—As with physicians, the number of dentists and the proportion of dentists entering specialty practice have increased considerably over the past two decades. However, rural areas have considerably fewer dentists per capita than urban areas, and projected future shortages of dentists are likely to worsen the situation (*673,686*). Despite the large number of dentists in general at the present time, there remains a small but constant demand for dentists in areas with chronic or occasional difficulty recruiting these practitioners.

Pharmacists—There has been no national census of pharmacists since the 1970s, and the number of pharmacists practicing in rural areas is unknown. The national supply of pharmacists is projected to increase (*673*). A handful of State studies suggest that urban/rural differences in distribution are less severe for pharmacists than for many other health professionals, but little is known about the existence of local areas of shortage.

Optometrists—Optometrists may be important providers of vision care in rural areas without ophthalmologists. One-third of all optometrists (and one-fifth of ophthalmologists) were practicing in communities of 25,000 or fewer residents in 1983 (*42*). As with pharmacists, the national supply of optometrists is increasing (*673*), although some local shortages may exist.

Allied Health Professionals—The allied health professions include a wide variety of laboratory personnel, therapists, technologists, emergency personnel, dental hygienists, and other professionals. A study by the Institute of Medicine, which examined 10 different allied health professions, predicted serious impending shortages in the national supply of physical and occupational therapists, radiologic technologists, and medical records specialists (*288*). The available anecdotal evidence and small-area studies suggest that some rural facilities are already suffering critical shortages of physical and occupational therapists and some radiologic and laboratory personnel.

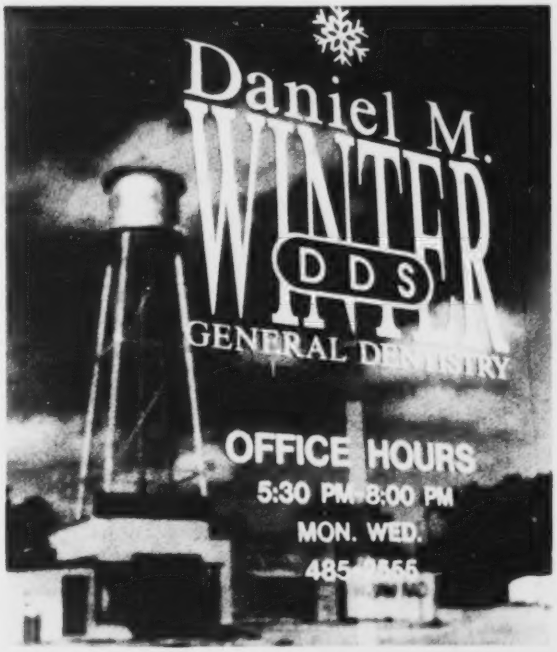

Photo credit: Peter Beeson

Some rural communities have limited access to basic dental services.

Barriers to Rural Practice

Barriers to the availability and willingness of health professionals to locate in rural areas intervene at two levels. First, because rural areas often have populations too sparse or dispersed to support many subspecialty physicians, *an inadequate supply of primary care physicians and midlevel practitioners is a barrier to the availability of health care services in rural areas even if there is an oversupply of physicians overall.* Although the supply of physicians has grown dramatically in the past two decades, most of the increase has been among nonprimary care specialists. The backbone of the rural health care system, however, is primary care physicians—those who can provide a wide array of basic health services to small communities that cannot support a full complement of specialists. Recent Federal policies have addressed this barrier by redesigning Medicare payment to enhance payment for many primary care services. Further

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[12] Nursing school enrollment actually increased slightly in academic year 1987-88, but long-term projections are still pessimistic.

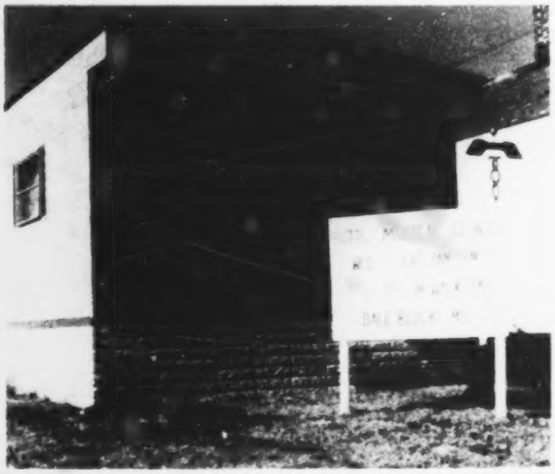

Photo credit: Peter Beeson

Satellite clinics that are staffed part-time can be a vital source of primary care services in many rural communities.

Federal options discussed below include supporting primary care physician and midlevel education directly or through changes in Medicare reimbursement for direct medical education.

Second, within a given group of professionals (e.g., primary care physicians), *personal concerns, perceived lower financial rewards, professional isolation, and lack of preparation for rural practice prevent many practitioners from locating and staying in rural areas.* Strategies to address these barriers and concerns through rural-oriented training programs and direct financial incentives for rural practice have had some success in the past. Federal measures to address disincentives to rural practice have been in place for two decades, but during the 1980s their funding declined. Options for reinstating Federal interventions include targeting funding to rural-oriented health professions programs and offering direct incentives to health professionals through scholarships, educational loan repayment, and special payment or practice provisions that apply to health professionals in underserved rural areas. The Federal Government could also choose to enhance other resources available to rural practitioners (e.g., technical assistance, continuing education, long-distance consultation resources). *Combinations of strategies, rather than any single strategy, are likely to be the most effective in improving the availability of health professionals in rural areas.*

Options for Congressional Action

Influencing the Supply of Primary Care Physicians

Option 8: Reorient or augment existing Federal funding for graduate medical education to direct resources to primary care specialties (family practice, general internal medicine, general pediatrics, and obstetrics/gynecology).

Option 8A: Expand Federal grant funding for primary care undergraduate and graduate medical education.

The Federal Government provides grants to family practice, general internal medicine, and general pediatric residency programs, but these grants declined substantially between 1980 and 1988. Grants for the development, improvement, and maintenance of undergraduate departments of family medicine have also decreased in recent years. Targeted funding for primary care education is one strategy for overcoming some of the disincentives for specialty training in primary care.

Option 8B: Weight Medicare reimbursement for direct medical education costs to give preference to primary care specialties.

Medicare reimbursement to hospitals for direct graduate medical education expenses does not distinguish among specialties. By altering the payment formula to give greater weight, and thus provide greater resources, to specified primary care specialties, it may be possible to alter the mix of physician specialists without further increasing the total number of physicians. A difficulty in implementing this option would be that of developing an adequate rationale for the specific weights to be assigned to each specialty. An advantage, compared with option 8A, is that it could be adopted without increasing overall levels of funding.

Enhancing Training and Preparation of Rural Health Personnel

Option 9: Within Federal grant programs for primary care medical education, target funding to rural-oriented programs.

Option 9A: Target a fixed percentage of grant funds for graduate medical education specifically to programs that emphasize preparation for practice in rural and underserved areas.

To be eligible for grants, programs could be required to encourage rural/underserved practice by incorporating into their curricula activities such as requiring rotations for residents in rural practice settings and providing enhanced training in mental health. Alternatively, eligibility for residency program grants could be made contingent on outcome—e.g., the demonstration that a requisite proportion of graduates were practicing in rural or underserved areas a year after graduation.

Option 9B: Target a percentage of grant funds for undergraduate medical education specifically to programs that emphasize preparation for primary care practice and for practice in rural and underserved areas.

Students entering undergraduate medical education with an interest in primary care often switch to subspecialty preferences by graduation. Undergraduate exposure to primary care practice in rural settings has been shown to positively influence the choice for rural primary care practice. Federal grant funds for undergraduate medical education could be targeted to programs providing such opportunities. Funding could also be targeted to schools serving areas of greatest need (e.g., allopathic and osteopathic medical schools in regions of low primary care physician supply), and funded programs could be targets for National Health Service Corps scholarship awards.

Option 10: Expand funding to training programs for midlevel professionals, giving preference to programs that emphasize preparation for rural practice.

Midlevel professionals are vital components of the rural health care system, but they are relatively few in number. Furthermore, the rise of HMOs and the expansion of other urban opportunities for midlevel professionals makes it more difficult for rural areas to recruit and retain these providers. Compared with funding for physician education, funding for midlevel training programs and continuing education is very limited. In 1988, only 11 rural-focused NP programs and 1 rural-focused CNM program were funded. Thirty-eight PA training programs are currently supported, many of which are required to develop and use methods designed to encourage graduates to work in health personnel shortage areas.

Current grant programs to health professions schools that train midlevel providers could be expanded and directed towards those programs that incorporate rural-oriented curricula, or that demonstrate success in placing graduates in rural and underserved areas.

Option 11: Provide grants and traineeships to rural-oriented multiple competency training programs for allied health professionals.

The availability of trained allied health personnel, and particularly of personnel who can perform more than one function, is becoming increasingly important to the survival of small rural hospitals. The small grant program currently authorized to fund multidisciplinary training programs does not explicitly include cross-training of allied health personnel.

To enhance the effectiveness of a cross-training program, continuation of funding could be contingent on an outcome requirement—e.g., training programs could be required to demonstrate that a substantial proportion of graduates were practicing in rural areas. The availability of traineeships might also enhance the effectiveness of a general program, by providing students from rural and underserved areas the financial incentive and capability to enroll in such a program.

Option 12: Expand funding for rural Area Health Education Centers, with special emphasis on training and continuing education of nonphysician health professionals.

The original AHEC concept was to develop multidisciplinary educational experiences. Although AHECs have become increasingly involved in such activities in recent years, most of their resources have been spent on physician education. AHECs are a model for encouraging State and local participation in activities addressing the geographic maldistribution of health professionals. The program is designed to create lasting networks that would eventually be supported entirely through State and local funds. To extend the usefulness of the AHEC model and encourage more comprehensive service delivery systems, future AHEC startup grants could be directed to programs that emphasize the training and continuing education of midlevel providers, mental health providers, and other nonphysician health professionals. AHEC "special initiative" funds could be targeted to existing AHECs for the same purposes. The authority for AHECs could be expanded to enable nursing schools to receive AHEC funds directly.

Offering Direct Incentives for Rural Practice

Option 13: Expand the National Health Service Corps (NHSC) by increasing funding for both the State and Federal components of the NHSC Loan Repayment Program and by reinstating a targeted Scholarship Program.

In 1988, 29 percent of all rural residents were living in federally designated HMSAs (*665*). This number has not changed appreciably during the past 5 years, indicating a need for ensuring the availability of health professionals who have at least a short-term commitment to serving in these areas. Federal investment in the NHSC declined dramatically in the 1980s and is now embodied primarily in Federal- and State-administered loan repayment programs. The Federal Loan Repayment Program was funded at $3.9 million in 1989 and that year recruited 112 professionals, mostly physicians. At present, there are only seven State NHSC Loan Repayment programs.[13]

The Loan Repayment program provides an incentive to recently graduated practitioners that is particularly appropriate for recruiting physicians and dentists, for three reasons. First, it does not require any commitments until the practitioner has finished his or her education, leading to less likelihood of default. Second, recipients are available almost immediately. Third, the level of indebtedness among medical and dental students has increased dramatically in recent years, and the pool of interested applicants to an expanded loan repayment program is likely to be large.

The State and Federal components of the loan repayment program have complementary advantages. The State program efforts are more localized than Federal efforts, and they attract providers who are willing to serve but want the assurance that they can carry out their service obligation within their State of residence. In addition, the program requirement that States match Federal funds encourages greater State participation in health personnel distribution activities.

Maintaining the Federal program would ensure that some obligated providers were available to serve in underserved areas in States without their own loan programs, and it would attract providers interested in new locations.

Available data indicate that the original NHSC Scholarship Program, while expensive, was highly successful at placing providers in shortage areas. A renewed scholarship program would be especially appropriate for midlevel providers. Their relatively low educational costs (compared with those for physicians) lead to correspondingly lower educational indebtedness, making loan repayment a relatively weaker policy tool, while making a scholarship program less expensive for the Federal Government. Scholarships for other health professions students could be targeted to those from low-income, minority, or rural backgrounds. These students are somewhat more likely than others to practice in underserved areas after graduation, and they are less likely to be able to afford the economic burden of a health profession education.

Other measures could also be taken within both the Loan and Scholarship programs to enhance the capabilities of obligated professionals and to increase the likelihood that they would remain after their obligation expires. For example:

- Preference could be given to students who have enrolled in a program with a rural, primary-care-oriented curriculum.
- Participants could be permitted to serve their obligations at a single site regardless of any change in the area's designation status during their period of obligation.
- The NHSC could actively coordinate with other programs (e.g., the AHEC program) to ensure support for scholarship recipients during their education and periods of obligation. Support might include such features as rural preceptorships, practice management training, technical assistance, and continuing education.

A renewed NHSC would be a major investment. If this option were implemented, the program would warrant accompanying oversight (e.g., by the General Accounting Office) in its first years to ensure that funds were appropriately and efficiently administered.

Option 14: Encourage or require States to offer bonuses under Medicaid to physicians provid-

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[13] The seven States are Minnesota, West Virginia, Texas, Florida, North Carolina, South Carolina, and New Mexico.

ing services in designated HMSAs, paralleling the current policy under Medicare.

This option would extend the benefits of increased access to Medicaid as well as Medicare beneficiaries. It would also increase incentives for physicians less likely to provide services to Medicare beneficiaries (e.g., pediatricians, obstetrician/gynecologists). Medicaid bonuses might be especially appropriate for physicians providing obstetric services in areas with shortages of obstetricians.

Option 15: Offer tax incentives to health providers in specified rural and underserved areas.

Direct and time-limited tax incentives for primary care providers (physicians and midlevel professionals) serving underserved populations might overcome perceived or real financial disincentives to locating and practicing in rural areas. Tax incentives could be offered to providers in all rural areas, but this policy could be expensive without improving availability in the areas of greatest need. If these incentives are linked to federally designated shortage or underserved areas, however, their continuation should not be dependent on the continued status of the designation (i.e., if the area is "dedesignated" during the term of the incentive, the incentive should not be removed).

Option 16: Allow a "grace period" before dedesignating HMSA areas, populations, and facilities.

For HMSAs with small populations, the addition of a single physician (or the retention of an NHSC physician past his or her period of obligated service) can mean the loss of designated status. The sudden loss of resources dependent on continued designation (e.g., Medicare physician bonus payments, placement of NHSC personnel, and qualification as a Rural Health Clinic under Medicare rules) may produce unintentional negative consequences.

A "grace period" could encourage existing providers to stay while permitting the Federal Government to direct new available personnel to more needy areas. For example, if the addition of a provider in a designated HMSA raises the provider-to-population ratio above the allowable limit and the HMSA is targeted for dedesignation during periodic review, that HMSA could be placed on a provisional list that received close monitoring. HMSAs on the list might receive no new resources but could continue existing resources linked to designation. If at the end of the 2-year period the ratio was still above the allowable limit, that HMSA could be dedesignated. Such a policy could be limited to primary care HMSAs or applied to all types of HMSAs.

Option 17: Authorize and implement a State rural health personnel grant.

A drawback to all rural health personnel programs operated from the Federal level is the inability to adapt strategies to local concerns and conditions. A State with a school to train physician assistants, for example, may most effectively address health personnel shortage problems by enhancing this school's curricula and providing scholarships to its students. In another State, absolute health personnel shortages might be less a problem than the provision of specific services, such as obstetrics; such a State might find that paying malpractice premiums for rural obstetrics providers was a more effective strategy than direct recruitment of more physicians to rural areas. A broadly defined grant to States would transfer responsibility to the individual States to decide how they choose to allocate the funds among health professions programs and direct incentive programs to enhance the supply of health professionals in rural areas. Such a grant could either augment existing Federal programs or replace some of them.

Under a rural health personnel grant program, States could be allocated grant funds based on a formula developed by DHHS (e.g., percentage of population that is rural; number of rural residents living in underserved or personnel shortage areas). Within the grant, States could spend funds on any of a list of relevant specified activities such as:

- grants to State health professions schools with rural-oriented curricula;
- Medicaid payment incentives for services provided in underserved areas;
- Medicaid bonus payments for "disproportionate share" providers (those with unusually high caseloads of Medicaid and uninsured patients);
- scholarship and loan programs;
- other recruitment mechanisms (e.g., placement services, State tax incentives);
- purchase of malpractice insurance premiums for rural obstetrics providers (obstetricians, family practitioners, CNMs, NPs);

- innovative continuing education programs for rural professionals; and
- development of appropriate curricula and establishment of community training programs (e.g., in local hospitals and community colleges) for rural residents interested in one of the allied health professions, and for current allied health personnel wishing to extend their accreditation to more than one area.

The expertise among State governments regarding the administration of rural health programs varies considerably. Some States are capable of designing and administering a detailed array of incentive and grant programs, while others have much more limited capability at present. As a prerequisite to receiving funds under such a grant, States could be required to provide a plan outlining the activities to be funded and indicating that the State has an adequate administrative capability (e.g., an Office of Rural Health or analogous body) to carry out the funding activities. In addition, States could be required to provide the Federal Government with basic information on the programs actually funded over the preceding year as a prerequisite for renewing the grant. This information would not only enable some oversight of expenditures but would provide the basis for the Federal Government to assist in information transfer among States regarding innovative programs.

Removing Barriers to Midlevel Practice

Option 18: Require States to reimburse under Medicaid for the services of NPs and PAs in rural areas, as long as these services are permitted by State practice acts.

Current Federal policy requires States to reimburse under Medicaid for services provided by pediatric and family NPs (Public Law 101-269). It also allows States to exercise the option of reimbursing for other NP and PA services, and nearly one-half of all States now do so to some degree. The Federal policy requiring States to provide Medicaid reimbursement for CNM services provides a precedent for a more general policy. As with CNMs, Federal policy could prevent State Medicaid programs from requiring the direct personal supervision of a physician during the delivery of NP and PA services. Restricting the requirement to rural areas might provide an additional incentive for NPs and PAs to locate in these areas, while a broader policy might encourage their expanded use in urban as well as rural settings.

This option carries weight only where State laws permit midlevel practitioners to operate under off-site supervision. The Federal Government has traditionally not dictated the scope of practice that States permit of their licensed health professionals. (Option 19 addresses a potential Federal role in the reexamination of State licensure restrictions.)

Option 19. Encourage DHHS to sponsor a conference to discuss models and guidelines for State nurse and medical practice act revision that would enhance the capabilities of midlevel practitioners to provide primary health care in rural and underserved areas.

Midlevel practitioners can provide a limited number of basic health services in areas not adequately served by physicians. Their ability to do so, however, is legally restricted in many States, particularly for PAs. A conference, sponsored by DHHS, would give representatives from different parts of the government and health care an opportunity to reevaluate the suitability of existing limits to midlevel practice. Participants might include experts from the medical, PA, and advanced nursing professions, representatives from State and Federal agencies, and representatives from other sectors of the health care industry. Guidelines developed by such a panel could help States evaluate and implement appropriate changes to their own regulations.

Improving the Information Base

Option 20: Improve monitoring of the Medicare Physician Bonus Payment Program to find out how well it works.

The Medicare physician bonus program was recently expanded to provide a 10-percent bonus for all physician services in all primary care HMSAs, in order to increase access to services for Medicare beneficiaries. It is not clear whether a 10-percent bonus on Medicare payment is sufficient to attract physicians to areas where they would otherwise not choose to locate, or whether it improves the retention of providers already in these areas. The Medicare caseload varies greatly from physician to physician, and the strength of the bonus incentive probably varies accordingly. To improve DHHS's ability to evaluate the program, carriers could be required to submit to the Health Care Financing Administration data regarding the number of physicians receiving bonus payments and the distribution of services for which bonus payments are made.

Option 21: Establish a program, through the Bureau of Health Professions, to provide small grants and technical assistance to States and professional associations to establish and implement uniform data collection procedures among the health professions.

Better data on the supply and distribution of health professionals would improve the Federal Government's ability to monitor trends in the availability of these personnel in rural areas. Most professional associations collect data on the members of their profession, but these efforts are sometimes very limited, and the data are not compatible. States likewise collect data on licensed health professionals, and they may include some professionals not represented in professional association databases. To enhance these efforts with a minimum amount of Federal resources, the Bureau of Health Professions in the Health Resources and Services Administration could establish criteria for uniform data collection. The Bureau could then provide States and associations with technical assistance on survey sample selection methods or on census collection methods, make available startup funds, and offer other appropriate assistance (e.g., for hardware, software, and other resources).

TWO SPECIFIC SERVICES

Issues and Options in Maternal and Infant Care[14]

Fetal, infant, and maternal mortality are all disproportionately high in rural areas (*647,650*).[15] These indicators of relatively poor rural maternal and infant health persist despite private and government-funded programs that have successfully reduced infant mortality in targeted areas. *Two potential contributors to the relatively poorer health of rural mothers and infants are the limited availability of obstetric providers and access to specialized care for women with difficult pregnancies and deliveries.*

The availability of rural obstetric providers has declined sharply in recent years, and over 500,000 residents of rural counties—many of them in the South—are without any physicians who provide obstetric care. In many rural areas, physicians trained to provide obstetric services are not doing so. Unwillingness is often due to concerns about inadequate sources of backup, consultation, and referral that are shared by rural physicians in all specialties. In addition, however, many physicians are limiting or eliminating their obstetric practices as a direct consequence of the high cost of malpractice insurance and fears of lawsuits. These trends are particularly disturbing in rural areas because alternative sources of obstetric care may be a considerable distance away.

Where there are obstetric providers, they are usually general and family practitioners rather than obstetricians. And although rural hospitals are much more likely than urban hospitals to offer obstetric care, they are much less likely to offer specialized care. Consequently, rural women with complicated or high-risk pregnancies may have to travel considerable distances to receive specialized care. Regionalized perinatal care, successfully promoted in the past by Federal programs, can enhance access to specialty services when obstetric or neonatal emergencies arise, but regionalized systems of care have deteriorated over the past several years.

In some rural areas, women who are able—particularly those with higher incomes and private insurance coverage—are bypassing local facilities to deliver in distant hospitals offering sophisticated services. One result may be to leave local physicians and hospitals with an increasingly higher proportion of patients who cannot pay the full costs of their care. Rural physicians under these circumstances may find it particularly difficult to afford obstetric liability insurance, possibly prompting them to reduce their obstetric practices and further increasing the burden on remaining obstetric providers.

Federal maternal and infant health programs (e.g., Medicaid, the Maternal and Child Health block grant, and C/MHC funds) are especially important in rural areas, where the inability to pay for obstetric services is a serious problem. In 1982, rural deliveries accounted for nearly one-half of all uncompensated deliveries. C/MHCs are particularly important

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[14] See also option 5 and personnel options generally (options 7 through 22).

[15] This finding holds true after adjusting for race and sex. Unadjusted rural infant mortality rates are actually lower than urban rates, because of the greater prevalence of white infants in rural areas.

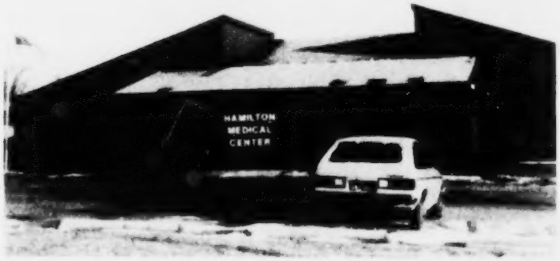

Photo credit: Tim Henderson

Many rural community health centers attract a large cross-section of community residents and may be vital sources of local obstetric care.

sources of prenatal care for many rural women, because they accept all Medicaid patients and provide discounted care for low-income uninsured patients. *But the expense of malpractice insurance has reduced the ability of some federally supported C/MHCs to provide obstetric care (289).* Ensuring survival of essential rural C/MHCs (and their ability to provide obstetric services) is as important to maternal and infant health as ensuring survival of essential rural hospitals.

Option 22: Extend liability coverage under the Federal Tort Claims Act to C/MHC staff and contract providers engaged in obstetric care.

The Federal Tort Claims Act currently insures both commissioned officers of the NHSC and NHSC scholarship graduates who work as civilian employees of the Public Health Service. Many C/MHC obstetric providers placed through the NHSC, however, have no federally provided insurance coverage because they are paid through the center. Providing insurance coverage might increase the willingness of obstetric providers to join C/MHC staffs, to remain at these locations, and to continue to provide a full range of obstetric services to C/MHC patients.

Option 23: Enhance the information base for Federal rural maternal and infant health policy.

Option 23A: Investigate in more depth the urban and rural differences in perinatal health status indicators.

Whether the excess of rural fetal deaths is real or occurs because of differential reporting in rural and urban areas is unclear and deserves further investigation. The underlying cause of the excess mortality in late infancy likewise deserves to be investigated. Clarification of perinatal health status in rural areas would be useful in targeting programs. Programs to improve care for pregnant women might curb excess fetal deaths, while improved pediatric care could potentially reduce high mortality rates among older infants. Congress could direct the National Center for Health Statistics or the Agency for Health Care Policy and Research to investigate these issues.

Option 23B: Develop a database that would allow Federal policymakers to target resources to States and to their rural areas with perinatal health problems.

A number of programs have shown success in improving access to prenatal care in the past.[16] The Federal Government could build on their success by targeting resources for such programs to areas with high-risk populations, high perinatal mortality, and a high proportion of women seeking late or no prenatal care. Such areas could be identified in part with information available on vital records (e.g., birth certificates). The National Center for Health Statistics, in the Centers for Disease Control, could undertake this activity.

Option 24: Enhance the DHHS Office of Maternal and Child Health's (MCH's) ability to provide useful information and technical support to rural maternal and infant care efforts.

Option 24A: Enable and encourage MCH to support additional demonstration projects in rural areas. Funded projects could evaluate the feasibility of innovative approaches to improving access to perinatal services in rural areas.

Demonstration projects funded through MCH could be used, for example, to compare the relative cost and effectiveness of bringing providers into isolated rural areas with providing transportation services to the patients themselves. Among the current MCH-funded rural projects is an evaluation of the use of an outreach consultation team of perinatal specialists to visit rural health districts

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[16] Components of successful programs include: publicly supported obstetric providers, midlevel practitioners, perinatal transportation systems, interagency coordination, and use of outreach workers to recruit patients and provide followup and transportation.

(*687*). Demonstration project funding could be expanded to include more model projects that:

- employ nonphysician providers as rural outreach workers,
- promote regional approaches to solve access problems,
- promote linkages of available perinatal resources, and
- incorporate home visits by nurses or paraprofessionals.

Projects could be required not only to evaluate the effectiveness but the costs of these models.

Option 24B: Provide additional funds (or earmark a proportion of future funds) to better allow MCH to offer technical assistance on request to States that are developing regionalized perinatal care services that include rural areas.

A perinatal care network is an essential component of a functional network of comprehensive health care services to rural residents. Resources from various Federal sources are available to help States develop regional and local networks and services. Greater availability of technical assistance from MCH might help States and communities use both Federal and local funds most effectively.

Issues and Options in Mental Health Care[17]

The prevalence of mental disorders in rural Americans is similar to that of their urban counterparts. Despite the similarity in mental health problems, the little information that exists suggests that rural areas have substantially fewer mental health resources than urban areas. Furthermore, where resources exist, they are likely to be narrower in scope.

As with other health facilities, mental health facilities face problems in serving populations spread over vast distances. In addition, they are caught between competing needs for services for the chronically mentally ill and services for acute and less serious conditions. Because recent Federal and State policies have tended to emphasize the former, the ability of many rural mental health providers to offer services such as suicide prevention, education, crisis intervention, support groups, and individual counseling for less severe mental health problems has waned. Furthermore, other sources of services (e.g., from nonprofit foundations) are less available to fill the vacuum in rural than in urban areas.

Blue Valley Mental Health Center

Photo credit: Peter Beeson

Access to local mental health services is severely limited in many rural areas.

Rural mental health professionals face problems similar to those of other rural health professionals. They have fewer training opportunities, fewer colleagues with whom to consult and to discuss professional issues, and more diverse demands on their time than do their urban counterparts. Primary care physicians provide much of the mental health care in both urban and rural areas, but they receive relatively little training in mental health diagnosis and treatment. Master's level mental health professionals, paraprofessionals, allied professionals (e.g., the clergy), and volunteers are also vital providers of rural health services.

The severe shortage of psychiatrists and doctoral-level psychologists in rural areas, the proportion of mental health care provided by nonpsychiatric physicians, and the types of services likely to be most acceptable to rural residents all suggest that *integrating mental health and other health care is especially important in rural areas*. Social workers, psychologists, clinical psychiatric nurse specialists, and paraprofessionals play an important role in extending rural mental health services to those in

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[17] See also option 12.

Suicide
IS NOT
THE ANSWER

Photo credit: Peter Beeson

Staffing crisis hotlines is a possible mental health role for trained volunteers in rural areas.

need, and in linking these services with physical health services. These linkages may include such features as health and mental health clinics sharing a single service site, routine consultation between physicians and mental health center staff, or a full-time social worker providing counseling and educational services in a community health clinic or physician's office. Recent legislation has expanded the reimbursement available for certain "linkage" services, namely the mental health services provided by clinical social workers and psychologists in community health centers. Federal stimulation of linkage efforts themselves, however, has declined since the implementation of the mental health block grant in 1981.

Option 25: Provide grants to mental health professions training programs that include rural-oriented curricula and/or train professionals most likely to locate in rural areas.

For example, the provisions of Public Law 100-607, which provided special project grants to professional schools' training programs for clinical psychologists, could be extended to include masters' programs for social workers and clinical psychiatric nurse specialists. Or, grants under this law could be targeted or limited to projects emphasizing training for rural practice.

Option 26: Require States to reimburse under Medicaid for mental health services provided by midlevel mental health professionals to the extent that these services are permitted under State licensure law. Reimbursement could be limited to those services that were provided in HMSAs or MUAs and would be covered if provided by a physician.

In rural communities without psychiatrists or doctoral psychologists, primary mental health care is provided by either nonpsychiatric physicians or by midlevel mental health professionals (master's level clinical psychologists, clinical social workers, and clinical psychiatric nurse specialists). Current Federal policy covers reimbursement for the services of psychologists and social workers only in certified RHCs. Expanding the services for which midlevel mental health providers or their employers can receive reimbursement would probably increase access to these services in rural areas.

Option 27: Encourage the development of linkages between rural health and mental health services and professionals.

Greater enhancement of linkages might include measures to encourage case management, share building space, develop referral patterns, and make better informed decisions about patient care. "Linkage workers" could be expanded to include master's level nurse specialists. Federal initiatives of this kind are currently underway for health and substance abuse treatment, but a more permanent and consistent policy of linkages for substance abuse, mental health, and other health services could be adopted. Specific Federal strategies could include:

- reimbursement for linkage workers' services (e.g., social workers' services provided in physicians' offices, including consultative services provided to the physician);
- funding for the salaries of clinical social workers and other mental health providers in grants to federally funded C/MHCs;
- funding for inservice training, internships, and shared training sites; and
- requiring States to demonstrate that a portion of Federal mental health block grant funds is being used to support linkage efforts in rural areas as a prerequisite to continued block grant funding.

Option 28: Invest more resources in data collection and analysis activity oriented at urban-rural comparisons of mental health and substance abuse epidemiology, and at the availability of mental health services and personnel in rural areas.

The information available on rural mental health epidemiology and services is extremely thin and provides a poor basis for both monitoring mental health status and implementing Federal policies. Even the most basic national data on community mental health centers have been virtually nonexistent since 1981, and there are few reliable studies on mental health problems in rural areas. Congress could direct the Alcohol, Drug Abuse, and Mental Health Administration (ADAMHA) to place more emphasis on these research activities (e.g., through the National Institute of Mental Health's recently created Office of Rural Mental Health).

Option 29: Encourage or require ADAMHA to fund projects intended to demonstrate the utilization of volunteers and paraprofessionals in service delivery.

One way to help address mental health personnel shortages is to include paraprofessionals and community volunteers in service delivery. However, little is known about effective ways to increase the use of these providers, their acceptance in the community, and the effectiveness of the services they provide. Incentives to be tested in the demonstration projects could include training programs for paraprofessionals and clergy, reimbursement for professional activities to develop and train community workers, and educational support for community workers in the form of tuition for college training.

Part II

An Overview of Rural Populations and Health Programs

Chapter 2

Rural Populations

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Chapter 2
Rural Populations

INTRODUCTION

"Rural" evokes images of wheat fields and dairy farms, long stretches of desert, and small Appalachian communities. This chapter presents background on the rural population: who it includes, the economic and demographic characteristics of rural residents, and some basic indicators of rural health status.

The adjectives "urban" and "rural" encompass enormously diverse populations. Urban people may be residents of large inner cities, suburbs, or smaller cities and towns, each with its own characteristics and cultures. Similarly, rural people may live in towns or open countryside; their nearest neighbors may be across the street or 10 miles down a dirt road. Existing measures cannot convey the full diversity of urban and rural populations, but they can provide a starting place for examining the similarities and differences between these groups. An overview contrasting these basic characteristics is the goal of this chapter. Where possible, information summarizing aspects of rural diversity is also presented.

WHO IS RURAL?[1]

The term "rural" is intuitively associated with areas of small and sparsely settled population. Two more specific definitions are commonly used for statistical and health program purposes: the "rural population," as defined by the Bureau of the Census, and the "nonmetropolitan population," those people living outside of metropolitan (metro) areas as defined by the Office of Management and Budget.

The Census Bureau defines the rural population as the population not categorized as urban. The urban population, in turn, is defined as those people living:

- in an urbanized area—a central city (or cities) and its contiguous closely settled territory, with a combined population of at least 50,000; and
- in places (towns, villages, etc.) outside of urbanized areas with populations of at least 2,500 (*633*).

The nonmetropolitan (nonmetro) population consists of those people living outside of metropolitan statistical areas (MSAs). An MSA is a county,[2] or group of counties, that includes either:

- a city of 50,000 or more residents, or
- an urbanized area with at least 50,000 people that is itself part of a county or counties with at least 100,000 total residents (*634*).[3]

To be included in an MSA, a county that does not itself have a central city must have a specified level of commuting to the central county(ies) and must meet certain other standards regarding metropolitan character, such as population density. Figure 2-1 shows the MSAs in the United States as of 1986.

About one-fourth of the U.S. population is either "rural" by the Census definition or lives in nonmetro areas, but these two groups of people are by no means identical. About 14 percent of the population living in MSAs is designated by the Census Bureau as rural, while about 38 percent of the population living outside of MSAs is designated as urban (*633*). This occurs because, on the one hand, MSAs are county-based and may include large tracts of sparsely populated land in outlying areas of the county. On the other hand, the Census "urban" designation includes people in towns in otherwise sparsely populated areas. Roughly 15 percent of the U.S. population is "rural" by both definitions—i.e., lives neither in places of 2,500 or more residents nor in metropolitan counties.

Each definition has its advantages. The Census designations are more specific, because they are based on smaller geographic units, such as census tracts and towns. Census tract boundaries vary over time, however. In contrast, counties—the basic units from which MSA designations are made—have boundaries that are relatively stable, a major advantage for collecting and reporting statistical data that

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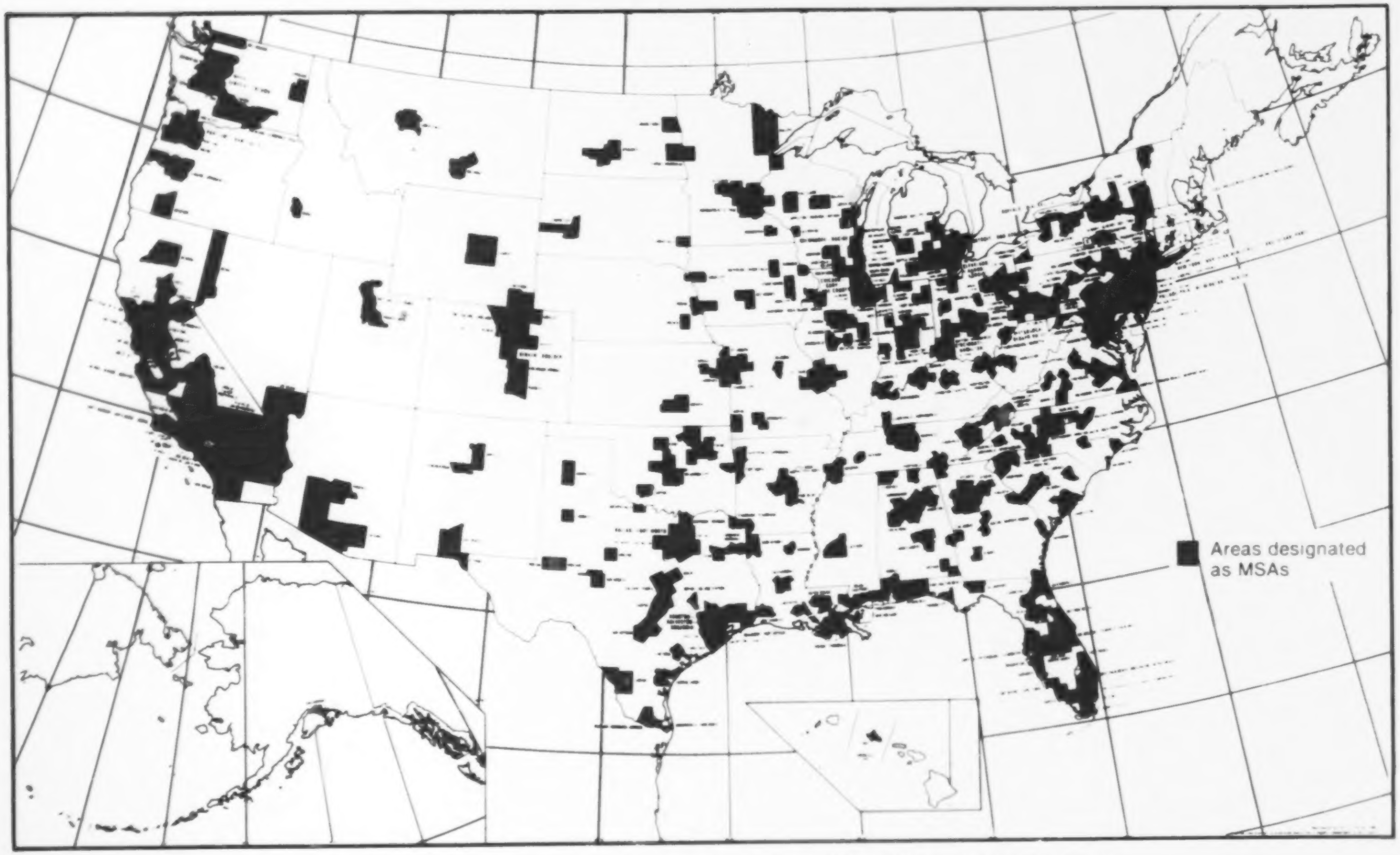
[1] See the related OTA Staff Paper for a more detailed discussion (*255*).

[2] In six New England States—Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut—MSAs comprise cities and towns, rather than whole counties. Standards for these MSAs are based primarily on population density and commuting patterns (*634*).

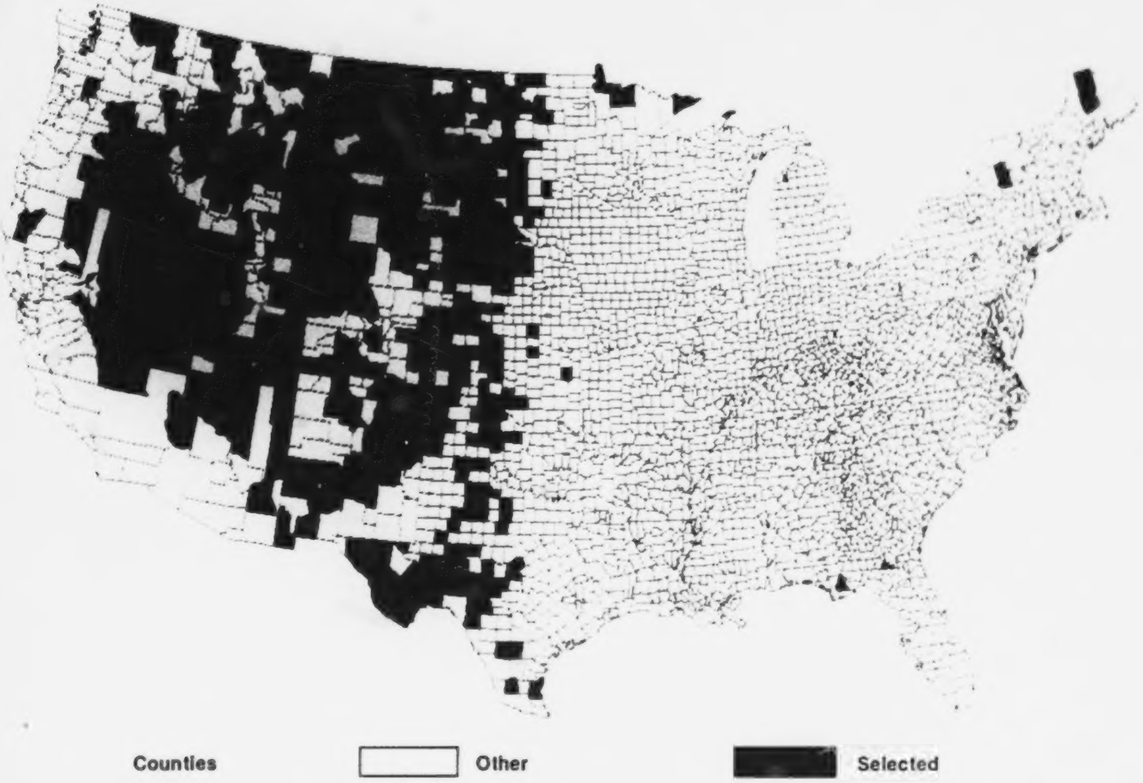
[3] Population is generally calculated based on the most recent decennial census, although some intercensus MSA designations also occur.

Figure 2-1—Metropolitan Statistical Areas (June 30, 1986)



SOURCE: Adapted from U.S. Department of Commerce, Bureau of the Census, "Metropolitan Statistical Areas (CMSAs, PMSAs, and MSAs)" (GE-50, No. 84) Stock No. 003-024-06506-1 (Washington, DC: U.S. Government Printing Office, 1986).

Figure 2-2—Frontier Counties: Population Density of Six or Fewer Persons Per Square Mile



SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Office of Data and Management, Area Resource File, June 16, 1986.

are comparable over time. *Data on "rural" residents presented in this and later chapters are actually data on nonmetro residents, unless a different definition is specified.*

A problem of both definitions is that they are dichotomous; they permit classification into only two categories (urban/metro and rural/nonmetro). Neither can describe the urban/rural continuum, nor can they describe in any detail the range of variation that exists within rural areas. Some researchers have developed more extensive typologies in an attempt to overcome these disadvantages, relying on combinations of measures such as population size, population density, adjacency to a metro area, and urbanization. None of the available typologies has so far found general application to health care programs, although several of them are being used in research efforts (*255*).

A particularly useful concept for the purpose of examining health care resources and access is that of "frontier" areas, defined as counties with population densities of six or fewer people per square mile (*480*). In such areas, physical access to health care is implicitly difficult for a substantial proportion of residents. Frontier counties are concentrated in the Great Plains and Western States and often extend over a large physical area (*480*) (see figure 2-2).

THE RURAL POPULATION

Size and Geographic Distribution

During America's brief history as a nation, the composition of the U.S. population has changed from one that was overwhelmingly rural to one that is predominantly urban. According to Census estimates, 95 percent of the population was rural in 1790; about 60 percent was rural at the turn of the

Table 2-1—United States Rural and Rural Farm Population, Selected Years, 1920-88

	Rural population[a]		Farm population		
Year	Number (in thousands)	Percent of total U.S. population	Number (in thousands)	Percent of rural population	Percent of total
1920	51,553	49	31,359	60	30
1930	53,820	44	30,529	57	25
1940	57,246	44	30,547	53	23
1950[b]	54,230	36	23,048	42	15
1960	54,054	30	13,475	24	9
1970	53,887	26	8,292	15	5
1980	59,495	26	6,051	10	3
1986	63,133	27	5,226	8	2
1987	63,889	27	4,986	8	2
1988	64,798	27	4,951	8	2

[a] Based on the Census-defined rural population.

[b] The rural population figures from 1950 on reflect definitional changes. Had the previous definition been used, the 1950 rural population would have been 60,948,000, or 40 percent of the total U.S. population.

SOURCE: U.S. Department of Commerce, Bureau of the Census, and U.S. Department of Agriculture, "Rural and Rural Farm Population: 1988," Current Population Reports, Series P-20, No. 439 (Washington, DC: U.S. Government Printing Office, September 1989).

20th century; and only 27 percent of the Nation's estimated 241 million people lived in rural areas by 1988 (table 2-1) (*632*). In 1988, an estimated 23 percent of the population—56,843,000 people—lived in nonmetro areas (*631*).

The absolute size of the rural population has not declined overall, but in recent years it has grown much more slowly than the urban population. The nonmetro population grew at a rate of only 0.6 percent per year during the 1980s (after a mild boom in the 1970s, when the growth rate was twice as high) (*631*). In contrast, the metro population has continued to grow at rates of over 1 percent per year.

The rural farm population[4] has undergone an absolute and marked decline during this century (table 2-1). In 1920, an estimated 31 million Americans lived on farms. In 1988, in contrast, the Census Bureau estimated the farm population to be slightly fewer than 5 million—about 8 percent of the Census-defined rural population, and about 2 percent of the total U.S. population (*632*).

Of the four major regions of the country, the South has both the highest proportion of its population (30 percent) and the highest number of people (25 million) living in nonmetro areas. The next most rural region by this measure is the Midwest (29 percent), followed by the West (16 percent) and, finally, by the Northeast (12 percent) (*631*).

States vary tremendously in their degree of "ruralness" depending on the criterion used. Of the 10 States whose nonmetro populations are largest in absolute size, for example, only two (Mississippi and Kentucky) have more than 50 percent of their population residing in these areas (table 2-2) (*631*). Contrasts between States according to the definition of "rural" are striking; less than one-half of Idaho's population is rural according to the Census definition, but over 80 percent of this State's population lives in nonmetro areas, the highest percentage in the United States (*631*).

Demographic and Income Characteristics

In general, rural residents are more likely than urban residents to be white, native-born, and living in a family headed by a married couple (table 2-3) (*633*). They are also more likely to be children (under age 18) or elderly (age 65 or older). They are less likely to be employed and to have completed a high-school education (*633*).

Rural residents have relatively low incomes. The average median family income in rural areas in 1987 was $24,397, about three-quarters of the average urban family income of $33,131 (*629*).[5] One out of eight urban families lived in poverty in 1987,

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[4] The Census Bureau defines the farm population as people living in rural areas on properties of at least 1 acre of land where at least $1,000 worth of agricultural products was sold (or would have been sold) during the previous 12 months (*632*).

[5] This ratio has not changed since the 1980 census (*633*).

Table 2-2—Size and Percentage of Population in Nonmetropolitan and Rural Areas, by State, 1987

State	Size of nonmetro population (in thousands)	Percent of total population in nonmetro areas (1987)	Percent of total population in Census-defined rural areas (1980)
Alabama	1,338	32.8	40.0
Alaska[a]	303	57.6	35.7
Arizona	805	23.8	16.2
Arkansas	1,444	60.5	48.4
California	1,182	4.3	8.7
Colorado	603	18.3	19.4
Connecticut	238	7.4	21.2
Delaware	219	34.0	29.4
District of Columbia	0	0.0	0.0
Florida	1,110	9.2	15.7
Georgia	2,204	35.4	37.6
Hawaii	252	23.3	13.5
Idaho	803	80.4	46.0
Illinois	2,022	17.5	16.7
Indiana	1,768	32.0	35.8
Iowa	1,612	56.9	41.4
Kansas	1,169	47.2	43.3
Kentucky	2,019	54.2	49.1
Louisiana	1,382	31.0	31.4
Maine	758	63.9	52.5
Maryland	322	7.1	19.7
Massachusetts	546	9.3	16.2
Michigan	1,820	19.8	29.3
Minnesota	1,435	33.8	33.1
Mississippi	1,829	69.7	52.7
Missouri	1,736	34.0	31.9
Montana	613	75.8	47.1
Nebraska	842	52.8	37.1
Nevada	175	17.4	14.7
New Hampshire	462	43.7	47.8
New Jersey	0	0.0	11.0
New Mexico	774	51.6	27.9
New York	1,696	9.5	15.4
North Carolina	2,868	44.7	52.0
North Dakota	417	62.0	51.2
Ohio	2,276	21.1	26.7
Oklahoma	1,350	41.2	32.7
Oregon	883	32.4	22.1
Pennsylvania	1,828	15.3	30.7
Rhode Island	73	7.4	13.0
South Carolina	1,355	39.6	45.9
South Dakota	506	71.3	53.6
Tennessee	1,603	33.0	39.6
Texas	3,194	19.0	20.4
Utah	384	22.8	15.6
Vermont	421	76.9	66.2
Virginia	1,668	28.3	44.0
Washington	854	18.8	26.5
West Virginia	1,209	63.7	63.8
Wisconsin	1,610	33.5	35.8
Wyoming	348	71.0	37.3

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[a] **The nonmetropolitan population in Alaska is determined using census tract and borough boundaries rather than county boundaries.**

SOURCE: U.S. Bureau of the Census, Statistical Abstract of the United States: 1989, 109th ed. (Washington, DC: U.S. Government Printing Office, 1989).

Table 2-3—Characteristics of Metropolitan and Nonmetropolitan Populations

	Metro	Nonmetro
General characteristics (1987)		
Total population	187,072,000	56,324,000
Population density per sq mi	328	19
Social and demographic characteristics (1980)		
Median age	30.0	30.2
Percent of population under age 18	27.8%	29.4%
Percent of population age 65 and over	10.7%	13.0%
Percent white	81.8%	88.2%
Percent Hispanic	7.6%	3.2%
Percent nonwhite	18.2%	11.8%
Percent black	12.7%	8.8%
Percent American Indian	0.5%	1.3%
Percent Asian/Pacific Islander	2.0%	0.6%
Percent native-born	92.4%	98.0%
Birth rate (births/1,000 population/year, 1977-1980)	1.5	1.6
Percent of households headed by women	28.3%	23.9%
Percent of children living with two parents	75.4%	80.1%
Education, employment, and income characteristics		
Median years of education completed (1980)	11.6	10.9
Percent high school graduates	85.0%	83.1%
Percent with college education (4 or more years)	12.8%	9.2%
Unemployment rate (1985)	6.9%	8.4%
Median family income (1987)	$33,131	$24,397
Percent with family incomes below poverty level (1987)	12.5%	16.9%
White	9.6%	13.7%
Black	30.7%	44.1%
Hispanic	27.6%	35.6%
Percent of poor families with 2 or more workers (1983)	15.4%	28.9%

SOURCES: U.S. Department of Commerce, Bureau of the Census, Statistical Abstract of the United States: 1989 109th ed. (Washington, DC: U.S. Government Printing Office, 1989); U.S. Department of Commerce, Bureau of the Census, 1980 Census: General Social and Economic Characteristics, vol. 1 (Washington, DC: U.S. Government Printing Office, September 1981); U.S. Department of Commerce, Bureau of the Census, "Money Income and Poverty Status in the United States: 1987," Current Population Reports, Series P-60, No. 161 (Washington, DC: U.S. Government Printing Office, August 1988); D.L. Brown and K.L. Deavers, "Rural Change and the Rural Economic Policy Agenda for the 1980's," D.L. Brown, J.N. Reid, H. Bluestone et al. (eds.), Rural Economic Development in the 1980's: Prospects for the Future (Washington, DC: U.S. Department of Agriculture, September 1988).

compared with more than one out of every six rural families (table 2-3); the ratio approaches one out of two for black families in rural areas (*629*). The rural poor are much less evenly distributed throughout the United States than the urban poor; over one-half (53 percent) of poor rural people under age 65 live in the South (*530*).

The vast majority of employed people both within and outside of metro areas are employed in personal services, manufacturing, and retail trade (figure 2-3).[6] The most striking employment difference, not unexpectedly, is in agriculture, which is the primary occupation of over 7 percent of employed persons in nonmetro areas (*v.* 1.5 percent of employed metro residents) (*633*).

A major caveat to this picture of the rural population is that the definition of "rural" used can affect even some of the most basic conclusions regarding urban/rural differences. For example, as stated above, nonmetro areas have a relatively high proportion of elderly residents. By the Census Bureau's definition, however, *urban* areas have a higher proportion of elderly residents (*633*). This apparent discrepancy is resolved by closer examina-

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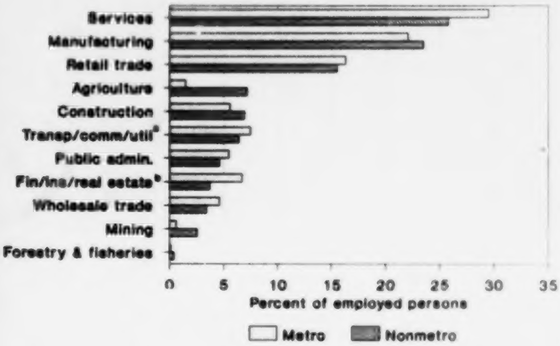
[6] These three occupational groups account for 68 and 74 percent, respectively, of employed metro and nonmetro residents (*633*).

Figure 2-3—Industry of Employed Persons Over Age 16 in Metropolitan and Nonmetropolitan Areas, 1980



[a] Transportation, communications, and public utilities.
[b] Finance, insurance, and real estate.

SOURCE: Office of Technology Assessment, 1990. Data from U.S. Department of Commerce, Bureau of the Census, *1980 Census: General Social and Economic Characteristics*, vol. 1 (Washington, DC: U.S. Government Printing Office, September 1981).

tion of the distribution of the elderly population, which shows it to be concentrated in small or medium-sized towns in both metro and nonmetro areas (table 2-4).

Within the nonmetro population, the generalities regarding rural residents obscure substantial regional differences. For example, nonmetro areas in the West have a much higher proportion of children than do metro areas (reflecting the profile for the Nation as a whole), but Midwestern nonmetro areas actually have proportionately fewer children than do metro areas in that region (table 2-5) (*447*).

THE RURAL ECONOMIC ENVIRONMENT

The Nation's rural areas are economically as well as demographically diverse. The U.S. Department of Agriculture (USDA) has identified seven groups of nonmetro counties according to the principal economic activity[7] or other predominating characteristics:[8]

1. *Farming-dependent counties*—702 counties, concentrated in the Midwestern plains region, in which farming contributed 20 percent or more of total income.

Table 2-4—Proportion of the U.S. Population Age 65 and Older, by Metropolitan/Nonmetropolitan and Urban/Rural[a] Status, 1980

Area	U.S. population (in thousands)	Percent age 65 and over
Metro	169,430	10.7
Nonmetro	57,115	13.0
Urban	167,055	11.4
Rural	59,491	10.9
Metro		
Urban	145,451	10.9
Rural	23,979	9.0
Nonmetro		
Urban	21,603	14.3
Rural	35,512	12.2

[a] "Urban" and "rural" as defined by the U.S. Census Bureau.

SOURCE: U.S. Department of Commerce, Bureau of the Census, 1980 Census: General Social and Economic Characteristics, vol. 1 (Washington, DC: U.S. Government Printing Office, September 1981).

2. *Manufacturing-dependent counties*—678 counties, concentrated in the Southeast, in which manufacturing contributed 30 percent or more of total income.
3. *Mining-dependent counties*—200 counties, concentrated in the West and in Appalachia, in which mining contributed 20 percent or more to total income.
4. *Specialized government counties*—315 counties, scattered throughout the country, in which government activities contributed 25 percent or more of total income.
5. *Persistent poverty counties*—242 counties, concentrated in the South, in which the per capita family income in the county was in the lowest quintile in specified years between 1950 and 1979.
6. *Federal lands counties*—247 counties, concentrated in the West, in which Federal land was 33 percent or more of the land area.
7. *Destination retirement counties*—515 counties, concentrated in the South, Southwest, and northern Lake States, in which the net immigration rates of people aged 60 and over during the 1970s were 15 percent or more of the expected population in this age group in 1980 (*82*).

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[7] I.e., the industry that contributed the most to labor and proprietor income in those counties in the 1970s.

[8] In all, 370 counties did not meet the requirements for any of the 7 county groups and are unclassified by this typology.

Table 2-5—Age Distribution of the U.S. Population Across Metropolitan and Nonmetropolitan Areas, by Geographic Region, 1980

Geographic region and residence	Population (in thousands)	Under 17 years	17-44 years	45-64 years	65 years and over
United States					
Metro	150,836	25.8%	43.9%	19.9%	10.4%
Nonmetro	70,650	27.5	40.7	19.6	12.3
Northeast					
Metro	38,861	24.9	42.0	21.3	11.7
Nonmetro	10,067	26.7	41.2	19.3	12.8
Midwest					
Metro	38,919	26.9	43.9	19.6	9.6
Nonmetro	19,574	26.2	41.5	19.4	12.9
South					
Metro	41,036	26.3	44.2	19.5	10.0
Nonmetro	31,467	27.8	40.0	19.9	12.3
West					
Metro	32,021	25.1	45.6	19.0	10.3
Nonmetro	9,542	29.8	40.9	18.8	10.6

SOURCE: C.H. Norton and M.A. McManus, "Background Tables on Demographic Characteristics, Health Status and Health Services Utilization," Health Services Research 23(6):725-756, February 1989.

Rural America has undergone a major economic restructuring over the past half century. In 1940, industries based on natural resources—agriculture, forestry, fishing, and mining—employed 40 percent of the rural labor force (*93*). By 1980, these industries accounted for fewer than 10 percent of jobs, while service, manufacturing, and construction industries had become as dominant as they were in urban areas (*93*).

The changes in the rural economy have not been consistently accompanied by prosperity. Rural areas in the 1970s experienced both population growth and economic prosperity. The disparity between rural and urban incomes narrowed during the early part of the decade, with rural per capita income reaching a high of 78 percent of urban income in 1973 (*253*). During the 1980s, however, the rural economy slowed dramatically. The rural unemployment rate skyrocketed from 5.7 percent in 1979 to 10.1 in 1982, and by 1985 it was still considerably higher than the urban rate (8.4 *v.* 6.9 percent). When the unemployment rate is adjusted to account for discouraged workers (those no longer looking for jobs) and involuntary part-time workers, differences were even more extreme (13.0 percent for rural workers *v.* 9.9 percent for urban workers in 1985) (*106*). The rural poverty rate increased by nearly one-third between 1973 and 1983 (*106*); despite improvements, it was still 35 percent higher than the urban poverty rate in 1987 (*629*).

Individual rural communities are highly vulnerable to economic shifts, because they are so often dependent on a single major industry (e.g., agriculture). The slow employment growth in rural areas also means that workers who lose their jobs often cannot find alternative employment. Regional clustering of particular industries and other characteristics of rural employment also amplify the effects of some economic changes. Rural manufacturing employment, for example, is heavily concentrated in blue-collar occupations in low-wage industries. Thus, rapid job losses in the manufacturing sector are likely to have a disproportionately negative effect on rural areas (*106*). In addition, rural manufacturing is heavily concentrated in the South, in large regions that may thus experience simultaneous employment problems. The agricultural sector experienced this situation in the early 1980s, leading to the "farm crisis" that devastated much of the Midwest.

Not all rural areas fared badly during the past decade. Rural areas with retirement- and government-based economies experienced economic growth as high as that in urban areas, at least during the early part of the 1980s (*253*). But counties dependent on farming, mining, and manufacturing suffered very slow economic growth. In farming and mining areas, real per capita income (adjusted for inflation) actually decreased between 1979 and 1984 (*253*). The economic upswing of the early 1980s for the most part left rural areas behind; two-thirds of new jobs during this period were in service industries, and over 85 percent of those service jobs were in urban areas (*253*).

THE HEALTH OF RURAL POPULATIONS

Health Status

Table 2-6 presents some information on basic health indicators for urban and rural populations. Compared with urban residents, rural residents overall have lower mortality rates, higher rates of chronic disease, and comparable rates of acute health problems.

After accounting for differences in age, sex, and racial distribution between urban and rural areas, mortality rates are lower in rural areas than in urban areas (table 2-6) (*626*). Two exceptions are notable. First, infant mortality is slightly higher in rural areas. Second, deaths resulting from accidents are a striking 40 percent higher in rural than in urban areas.

The frequency of acute illness, and the rate of disability due to acute disease, is similar for rural and urban populations (table 2-7). Rural residents in 1986 had a slightly higher incidence of acute conditions than did urban residents, and they had more days in which their activities were restricted due to these conditions, but they were less frequently confined to bed as a result of acute illness (*648*). An interesting and slightly different pattern is found for the subcategory of injury; rural residents have relatively fewer injuries, but greater levels of injury disability (table 2-7) (*648*).

Chronic disease, on the other hand, is a significant problem in rural areas. Some common chronic conditions (e.g., heart disease, hypertension, diabetes, arthritis, and certain vision and hearing impairments) are especially prevalent in rural populations (table 2-8) (*648*). The high rates of chronic impairment in rural areas result in slightly higher reported overall days of activity limitation (including both acute and chronic conditions) among rural than among urban residents (*648*).

High rates of chronic disease may explain the urban/rural differences in self-assessed health status. The proportion of people who consider themselves to be in only fair or poor health has been declining in both urban and rural areas (table 2-9). Nonetheless, rural residents remain 20 percent more likely than urban residents to consider themselves to be in this category (*651*).

Urban and rural residents differ in their practice of preventive behaviors. Rural residents are much less likely than urban residents to use seatbelts regularly (table 2-10), a characteristic that is consistent with their higher motor vehicle accident fatality rates (*649*).[9] Rural residents are also less likely to exercise regularly, and they are more likely to be obese. Fewer rural residents smoke, but those who do smoke more heavily than their urban counterparts (*649*).

In general, rural residents also appear to use preventive screening services less often than do urban residents (table 2-10) (*649*). This difference may be attributable to differences in access to medical services, so it is difficult to interpret. In at least one area of preventive medical care, however, rural residents participate on a greater level than U.S. residents as a whole. Children in rural areas are more likely than urban children as a group, and inner city children in particular, to be immunized against childhood diseases (table 2-11) (*651*).

Health Insurance

Rural residents are less likely than urban residents to be insured for their health care costs, particularly by private insurance (table 2-12). For children, differences in private insuredness among urban and rural residents is slight, but rural children are considerably less likely to be covered by Medicaid (*513*). The opposite is true for nonelderly rural adults: they are much less likely than urban adults to be privately insured, but they have only slightly lower Medicaid coverage (*513*). In 1987, 17.4 percent of rural residents had no health insurance (*557*).[10]

Differences in private coverage between urban and rural residents are strongly related to employment. Rural residents are much less likely than urban ones to have employment-related insurance (table 2-13) (*557*). In fact, differences in private coverage between urban and rural populations would probably

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[9] Motor vehicle accidents do not occur more frequently in rural than in urban areas, but when accidents do occur they are more likely to be fatal (*623*).

[10] Includes only civilian and noninstitutionalized persons.

Table 2-6—Metropolitan/Nonmetropolitan Differences in Selected Health Indicators

Indicator	Metro	Nonmetro
Mortality[a]		
Infant mortality (deaths per 1,000 liveborn infants under age 1, 1987)	9.88	10.07
Mortality from all causes (per 1,000 population, 1980)	9.21	8.87
Major cardiovascular disease	4.61	4.45
Malignant neoplasms	1.99	1.73
Chronic obstructive pulmonary disease	.26	.25
Pneumonia and influenza	.26	.24
Motor vehicle accidents	.21	.31
All other accidents	.22	.29
Diabetes mellitus	.16	.16
Suicide	.12	.11
Homicide and legal intervention	.11	.07
Acute disease (per person per year, 1987)		
Number of conditions	1.73	1.73
Restricted activity days	6.72	7.07
Bed days	2.98	2.95
Work-loss days (employed adults)	3.13	3.00
School-loss days (children)	3.36	3.48
Chronic disease[b] (percent of respondents with activity limitation, 1988)		
Total limited in activities due to chronic conditions	12.6%	14.9%
Limited in major activity	8.7%	10.7%
Unable to perform major activity	3.7%	4.3%
Limited in amount or scope of major activity	5.0%	6.4%
Limited, but not in major activity	3.9%	4.2%
Overall health, including both acute and chronic conditions		
Number of restricted days per person per year, 1987:		
All types of restrictions	14.1	14.7
Bed days	6.2	6.0
Work-loss days (employed persons)	5.2	4.9
Self-assessed health status, percent of respondents, 1988:[b,c]		
Fair or poor	9.0%	11.0%
Good	22.2%	24.8%
Very good or excellent	69.0%	64.3%

[a] Mortality rates are adjusted to accommodate the different age, sex, and racial distributions of the urban and rural populations.

[b] Rates in these categories are age-adjusted.

[c] Numbers do not add to 100 percent due to rounding.

SOURCES: Mortality rates from National Center for Health Statistics, unpublished and published data as adjusted by Office of Technology Assessment (see refs. 626 and 650). Restricted activity data from C.H. Norton and M.A. McManus, "Background Tables on Demographic Characteristics, Health Status and Health Services Utilization," Health Services Research 23(6):725-756, February 1989; and U.S. Department of Health and Human Services, Centers for Disease Control, National Center for Health Statistics, "Current Estimates From the National Health Interview Survey, 1987," Vital and Health Statistics, Series 10, No. 166, DHHS Pub. No. (PHS)88-1594 (Washington, DC: U.S. Government Printing Office, September, 1988). Activity limitation and self-assessed health status data from 1987 National Health Interview Survey data as published in U.S. Department of Health and Human Services, Public Health Service, National Center for Health Statistics, Health, United States, 1988 and Health, United States, 1989 (Washington, DC: U.S. Government Printing Office, March 1989 and March 1990).

be even greater except for the fact that rural residents are more likely than their urban counterparts to purchase non-employment-related private coverage (table 2-13). Employment-related insurance coverage is lower for agricultural, forestry, and fishery workers—occupations that are predominantly rural—than for workers in any other industries (figure 2-4) (*557*).

Rural residents have lower average incomes than urban residents, and lower incomes are associated in both rural and urban areas with lower rates of private insurance coverage (table 2-14) (*530*). At any given level of income, however, poor rural residents (incomes below 200 percent of the Federal poverty threshold) are more likely than urban residents to have some private insurance. On the other hand, for

Table 2-7—Acute Conditions Involving Activity Limitation and/or Medical Attention in Metropolitan and Nonmetropolitan Populations, 1986

	Number per 100 persons per year[a]					
	Conditions		Restricted activity days		Bed days	
Type of acute condition	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro
All acute conditions	172.6	173.0	671.9	707.3	298.2	295.4
Infective/parasitic diseases	22.7	24.8	73.4	78.6	35.1	36.9
Respiratory conditions	80.0	80.2	263.9	265.8	131.0	136.5
Digestive system conditions	6.6	5.3	24.9	31.1	12.1	12.0
Urinary conditions	2.3	4.0	11.0	13.9	5.4	5.1
Musculoskeletal/skin conditions	5.0	2.7	29.0	28.3	10.5	6.2
Ear/eye conditions	10.7	11.1	25.5	20.4	11.0	7.7
Unspecified fever/headache (excluding migraine)	3.1	2.7	8.8	9.1	4.1	4.6
Injuries	27.6	24.9	158.6	180.2	52.4	56.8
Delivery/conditions of pregnancy	1.9	1.7	26.1	25.9	10.7	9.1
Disorders of the female genital tract	1.6	1.1	8.0	8.0	4.1	2.5
All other acute conditions	11.0	11.0	42.8	45.8	20.2	13.0

[a] There estimates are based on a sample of fewer than 123,000 people. Estimates for low-incidence conditions thus have a high potential rate of error.

SOURCE: U.S. Department of Health and Human Services, National Center for Health Statistics, "Current Estimates From the National Health Interview Survey: United States, 1987," Vital and Health Statistics, Series 10, No. 166. DHHS Pub. No. (PHS) 88-1594 (Washington, DC: U.S. Government Prin

Table 2-8—Selected Chronic Conditions Among Metropolitan and Nonmetropolitan Residents (prevalence per 1,000 persons, 1987)[a]

Type of chronic condition	Metro	Nonmetro
Selected circulatory conditions		
Rheumatic fever with or without heart disease	8.0	7.6
Heart disease	77.4	99.3
High blood pressure (hypertension)	113.6	135.7
Cerebrovascular disease	11.2	11.8
Hardening of the arteries	9.0	12.9
Varicose veins of lower extremities	30.1	33.0
Hemorrhoids	41.7	51.6
Selected respiratory conditions		
Chronic bronchitis	51.8	59.2
Asthma	39.9	40.9
Hay fever or allergic rhinitis without asthma	97.8	86.0
Chronic sinusitis	125.0	158.8
Deviated nasal septum	7.0	3.2
Chronic disease of tonsils or adenoids	12.3	16.4
Emphysema	8.1	10.2
Selected skin and musculoskeletal conditions		
Arthritis	123.8	158.9
Gout, including gouty arthritis	9.2	11.2
Intervertebral disc disorders	16.9	16.0
Bone spur or tendinitis, unspecified	8.7	11.5
Disorders of bone or cartilage	4.7	5.1
Trouble with bunions	10.1	7.9
Bursitis, unclassified	19.0	20.9
Sebaceous skin cyst	5.9	5.8
Trouble with acne	19.4	18.8
Psoriasis	8.4	9.5

(continued on next page)

Table 2-8—Selected Chronic Conditions Among Metropolitan and Nonmetropolitan Residents (prevalence per 1,000 persons, 1987)[a]—Continued

Type of chronic condition	Metro	Nonmetro
Selected skin and musculoskeletal conditions--Continued		
Dermatitis	35.8	38.9
Trouble with dry, itching skin (unclassified)	16.8	22.1
Trouble with ingrown nails	19.9	37.1
Trouble with corns and calluses	16.1	20.3
Impairments		
Visual impairment	31.9	37.9
Color blindness	11.5	11.9
Cataracts	22.2	27.3
Glaucoma	8.2	10.8
Hearing impairment	82.0	108.5
Tinnitus	25.2	29.3
Speech impairment	9.8	10.9
Absence of extremities	6.6	7.8
Paralysis of extremities, complete or partial	4.4	7.4
Deformity or orthopedic impairment	115.5	118.6
Back	65.4	63.3
Upper extremities	12.5	15.7
Lower extremities	50.4	55.2
Selected digestive conditions		
Ulcer	18.1	23.1
Hernia of abdominal cavity	18.0	24.0
Gastritis or duodenitis	12.5	10.7
Frequent indigestion	22.6	35.2
Enteritis or colitis	7.9	9.9
Spastic colon	5.9	4.4
Diverticula of intestines	7.6	10.0
Frequent constipation	18.7	23.3
Other selected conditions		
Goiter or other disorders of the thyroid	11.4	11.7
Diabetes	26.7	31.6
Anemias	13.7	12.2
Epilepsy	4.1	4.9
Migraine headache	35.8	35.8
Neuralgia or neuritis, unspecified	3.3	5.1
Kidney trouble	12.1	20.0
Bladder disorders	13.3	18.4
Diseases of prostate	6.8	8.7
Diseases of female genital organs	18.0	18.2

[a] These estimates are based on a sample of fewer than 123,000 people. Estimates for low-prevalence conditions thus have a high potential rate of error.

SOURCE: U.S. Department of Health and Human Services, National Center for Health Statistics, "Current Estimates From the National Health Interview Survey: United States, 1987," Vital and Health Statistics, Series 10, No. 166, DHHS Pub. No. (PHS) 88-1594 (Washington, DC: U.S. Government Printing Office, September 1988).

any given income level, poor rural residents are much less likely than poor urban residents to be covered by Medicaid. For farm residents, the lack of Medicaid coverage is striking; fewer than 6 percent of farm residents with incomes below the Federal poverty threshold were covered by Medicaid in 1987, compared with over 44 percent of below-poverty urban residents (and 38 percent of nonfarm rural residents) (*530*). A likely explanation is that poor farm families tend to be two-parent households who are often ineligible for Medicaid. (As of 1990, States are required to provide Medicaid coverage to all two-parent families with incomes below State-defined poverty levels. They must also cover all pregnant women and young children with incomes up to 133 percent of the Federal poverty threshold, and they have the option of extending coverage to those with incomes up to 185 percent of the poverty threshold (Public Laws 99-509, 100-203). Other poor individuals, however, still qualify for Medicaid only if their incomes fall below State-defined eligibility levels).

Table 2-9—Proportion of Metropolitan and Nonmetropolitan Residents Who Rated Their Health as Fair or Poor, Selected Years, 1975-88

Year	Metro	Nonmetro
1975	11.2	14.2
1980	11.0	14.0
1983	10.0	12.0
1985	9.0	12.0
1987	9.0	10.8
1988	9.0	11.0

NOTE: Numbers are adjusted for age (i.e., account for differences in age distributions between metro and nonmetro areas).

SOURCES: U.S. Department of Health and Human Services, Centers for Disease Control, National Center for Health Statistics, Health, United States, 1982, Health, United States, 1986, Health, United States, 1988, and Health, United States, 1989 (Washington, DC: U.S. Government Printing Office, 1982; December 1986; March 1989; and March 1990).

Health Care Utilization

Rural residents have less contact with physicians than do people in urban areas. Based on responses from the National Health Interview Survey, not quite three-fourths (74 percent) of the rural population have seen or telephoned a physician within the past year (table 2-15).[11] This proportion is slightly lower than that for the urban population (76 percent), whose visits were also longer in duration (*651*). However, both urban and rural populations have increased the number and frequency of physician contacts over the past two decades (table 2-16) (*651*).

Compared with urban residents, rural residents are much more likely to visit a physician specializing in family medicine and much less likely to visit one specializing in internal medicine (table 2-17) (*447*). These differences are probably largely due to the geographic distribution of the different specialties (see ch. 10).

Trends for visits to dentists parallel those for physician contacts. Rural residents average fewer visits per year and are less likely to have had a recent

Table 2-10—Selected Preventive Behaviors and Risk Exposure of Metropolitan and Nonmetropolitan Residents, 1985

Behavior	Percent of adult population with behavior Metro	 Nonmetro
Use seatbelts all or most of time	38.9	25.5
Exercise regularly	41.5	35.2
Had Pap smear in past year (women only)	46.8	41.8
Had breast exam in past year (women only)	51.8	45.4
Had blood pressure check in past year	85.3	83.7
Have been told have high blood pressure at least 2 times	16.8	19.4
Of those with high blood pressure, taking medication	64.9	67.9
20 percent or more above desirable body weight	23.1	26.9
Currently smoke cigarettes	30.3	29.4
Of smokers, smoke 25 or more cigarettes per day	26.0	28.7
Of women aged 18 to 44 giving birth in past 5 years:		
Smoked in 12 months before giving birth	31.7	31.9
Quit smoking when pregnant	22.0	18.8
Reduced smoking when pregnant	35.4	38.0
Of drinkers, in the past year:		
Consumed 5 or more drinks in one day on at least 5 occasions	24.5	26.0
Have driven car when had too much to drink	16.6	17.9
Exposed to at least one job-related health hazard in current job	59.5	68.7

SOURCE: U.S. Department of Health and Human Services, Centers for Disease Control, Hyattsville, MD, National Center for Health Statistics, unpublished data from the 1985 National Health Interview Survey, Health Promotion and Disease Prevention component.

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[11] These data are adjusted for the differences in age distributions between urban and rural populations.

Table 2-11—Immunization Status of Children Aged 1-4, 1985

Vaccination	Percent immunized			
	Total	Central cities	Other metro areas	Nonmetro
Polio	55.3	47.1	58.4	58.0
Measles	60.8	55.5	63.3	61.9
Mumps	58.9	52.4	61.0	61.4
Rubella	58.9	53.9	61.0	60.3
Diphtheria/pertussis/tetanus	64.9	55.5	68.4	67.9

NOTE: These rates are self-reported and based on respondant's memory. Rates reported by respondents who had consulted vaccination records were somewhat higher.

SOURCE: Data from the United States Immunization Survey, as published in U.S. Department of Health and Human Services, Centers for Disease Control, National Center for Health Statistics, *Health, United States, 1989* (Washington, DC: U.S. Government Printing Office, March 1990).

Table 2-12—Percentage of Population With Health Insurance Coverage, by Age and Residence, 1984[a]

Type of insurance	All ages		0-17 years		18-64 years		65+ years	
	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro
Private insurance	77.2	74.7	72.6	72.3	78.9	76.2	75.0	71.9
Medicare	11.1	13.7	1.1[b]	1.4[b]	1.1[b]	1.4[b]	95.3	96.1
Public assistance (Medicaid, other)	6.1	5.8	11.5	9.1	4.0	3.9	5.6	7.6
Military/Veterans' Administration	3.2	3.9	2.7	2.9	3.1	3.9	4.5	6.1
No insurance	12.3	14.5	13.0	16.2	13.8	16.7	0.9	0.9

[a] Numbers do not add up to 100 percent, since individuals may be covered by more than one type of insurance (e.g., Medicare and private insurance).

[b] Number applies to all persons under age 65.

SOURCE: P. Ries, "Health Care Coverage by Sociodemographic and Health Characteristics, United States, 1984," *Vital and Health Statistics*, Series 10, No. 162, DHHS Pub. No. (PHS) 87-1590 (Washington, DC: U.S. Government Printing Office, November 1987).

Table 2-13—Private Insurance Coverage of Metropolitan and Nonmetropolitan Residents, 1987

Place of residence	Percent of population with type of health insurance			
	Employment-related private coverage	Other private coverage	Public coverage only	No coverage
20 largest metro areas	65.0	9.7	10.2	15.1
Other metro areas	67.4	8.9	9.0	14.7
Nonmetro areas	57.4	13.4	11.8	17.4

SOURCE: P.F. Short, A. Monheit, and K. Beauregard, *A Profile of Uninsured Americans*, DHHS Pub. No. (PHS) 89-3443 (Rockville, MD: U.S. Department of Health and Human Services, September 1989).

dental visit (table 2-15) (*651*). Eleven percent of rural residents have never visited a dentist (*651*).

Hospital utilization differences between rural and urban populations are less consistent. Proportionately more rural than urban people are hospitalized, but their hospital stays are shorter,[12] and rural residents had only slightly more hospital days per 100 residents in 1988 (table 2-18) (*651*). Rural residents also have fewer emergency room visits (*447*). As with physician contacts, however, trends in utilization are similar; urban and rural groups have decreased both their rates of hospital admis-

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[12] Data from the National Health Interview Survey show that rural residents continue to report shorter hospital stays than urban residents. Since 1987, however, rural hospitals have actually been reporting slightly longer average stays than urban hospitals (see ch. 5). The reason for the discrepancy is unclear.

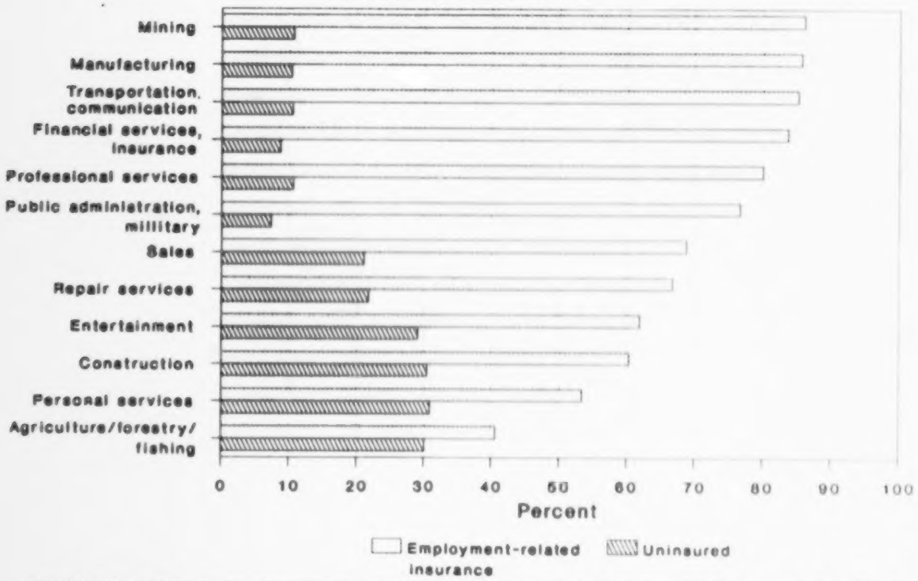

Figure 2-4—Health Insurance Status of Working Adults and Their Families, by Type of Industry, 1987

SOURCE: Office of Technology Assessment, 1990. Data from P.F. Short, A. Monheit, and K. Beauregard, *A Profile of Uninsured Americans*, DHHS pub. no. (PHS) 89-3443 (Rockville, MD: U.S. Department of Health and Human Services, September 1989).

Table 2-14—Insurance Coverage of the Population Under Age 65, by Residence and Income, 1987

Income (percent of Federal poverty level) and residence	Percent of population covered		
	Uninsured	Medicaid	Private/other
Below poverty			
Metro	37.0	44.4	18.6
Nonmetro	38.3	35.5	26.2
Nonfarm	38.9	38.4	22.7
Farm	32.4	5.8	61.8
100-149%			
Metro	36.4	13.5	50.1
Nonmetro	31.5	9.2	59.3
Nonfarm	32.2	9.7	58.1
Farm	24.7	3.9	71.4
150-199%			
Metro	26.1	6.1	67.8
Nonmetro	19.8	5.3	74.9
Nonfarm	20.2	5.6	74.2
Farm	15.1	1.3	83.6
200% or more			
Metro	10.5	1.1	88.4
Nonmetro	10.3	0.9	88.8
Nonfarm	10.0	1.0	89.0
Farm	14.4	0.3	85.3

SOURCE: Adapted from D. Rowland and B. Lyons, "Triple Jeopardy: Rural, Poor, and Uninsured," Health Services Research 23(6):975-1004, February 1989.

Table 2-15—Interval Since Last Contact With Physician (1988) and Dentist (1986) for Metropolitan and Nonmetropolitan Residents

	Interval since last visit			
Residence	Number of contacts per person in past year[a]	< 1 yr	1-2 yrs	2 or more yrs[b]
Physician contacts				
Metro	5.5	77.8%	10.2%	12.0%
Nonmetro	4.8	75.0%	11.5%	13.5%
Dentist visits				
Metro	2.0	58.8%	7.1%	34.1%
Nonmetro	1.7	51.8%	8.9%	39.3%

NOTE: Data are adjusted for differences in age distribution between metro and nonmetro areas.

[a] Physician contacts include telephone, office visits, hospital visits, and other. Dentist contacts include only visits.

[b] Includes those who have never visited a physician or dentist.

SOURCE: U.S. Department of Health and Human Services, Centers for Disease Control, National Center for Health Statistics, Health, United States, 1989 (Washington, DC: U.S. Government Printing Office, March 1990).

sions and their average lengths of stay during the 1980s (table 2-19) (*651*).

TWO SPECIAL POPULATIONS: A CLOSER LOOK

The rural population includes many subpopulations, each with its own characteristics. This section briefly examines two such subpopulations in greater detail: the rural elderly and migrant and seasonal farmworkers.

The Rural Elderly

Population Characteristics

The great majority of people age 65 and over in the United States—71 percent—live in metropolitan counties (*633*). Nonetheless, elderly persons make up a greater proportion of the nonmetro than the metro population (13 *v.* 11 percent) (table 2-20) (*633*). The elderly are especially prevalent in towns of 2,500 to 10,000 residents, where they make up nearly 15 percent of the population. Even the oldest ages are well-represented in these towns; the proportion of the population that is age 85 and over, for example, is higher in towns of this size than in any other urban or rural category (table 2-20) (*633*).

Among geographic regions, the South has by far the greatest number of rural elderly persons. One-third of the Nation's elderly live in this region (figure 2-5), and 38 percent of them live in nonmetro areas (*633*). Nearly 16 percent of farm residents in the South are elderly (table 2-21). The Midwest is a close second with 26 percent of the U.S. elderly, over one-third of whom live in nonmetro areas. In contrast, the West and Northeast have a relatively low rural elderly presence (*633*).

The rural elderly have incomes lower than those of the urban elderly (table 2-22). Based on the 1980 census, the median income is lower for nonmetro than metro elderly residents, and within both groups "rural" residents (by the Census definition) have lower median incomes than "urban" residents. In 1979, nearly one-third of nonmetro elderly persons had incomes that were less than 125 percent of the Federal poverty threshold (*633*).

About 28 percent of both metro and nonmetro elderly residents live alone (table 2-23) (*633*). Within nonmetro areas, however, there are substantial differences in living arrangements. Only 16 percent of elderly persons on farms live alone, for example; 75 percent live with their spouses. In contrast, only a little more than one-half of elderly individuals residing in small cities and towns live with their spouses, while over 30 percent live alone (*633*). Thus, there is considerable variation within rural areas in the home-based family and social resources available to elderly people.

The great majority of rural elderly persons—96 percent—are covered by Medicare (see table 2-12); less than 1 percent lack any health insurance (*513*). However, the rural elderly are somewhat more likely than the urban elderly to rely on Medicaid or other public assistance, and they are less likely to have

Table 2-16—Percent of Metropolitan and Nonmetropolitan Residents Who Have Had a Physician Visit Within the Past 2 Years, Selected Years, 1964-88

Year	Metro	Nonmetro
1964	82.2	78.1
1975	86.6	84.8
1980	86.6	84.7
1982	87.5	85.2
1985	85.9	84.0
1987	87.6	85.6
1988	88.0	86.5

NOTE: Numbers are adjusted for age (i.e., account for differences in age distributions between metro and nonmetro areas).

SOURCES: U.S. Department of Health and Human Services, Centers for Disease Control, National Center for Health Statistics, Health, United States, 1982, Health, United States, 1986, Health, United States, 1988, and Health, United States, 1989 (Washington, DC: U.S. Government Printing Office, 1982; December 1986; March 1989; and March 1990).

Table 2-17—Distribution of Physician Visits in Metropolitan and Nonmetropolitan Areas, by Specialty, 1985

Physician specialty	Metro	Nonmetro
General and family practice	11.9%	52.6%
Internal medicine	51.7	10.0
Pediatrics	6.0	7.1
Obstetrics/gynecology	4.7	5.9
General surgery	2.0	6.7
Orthopedic surgery	2.6	3.1
Ophthalmology	3.4	3.6
Other	17.4	11.1
Total	100%	100%

SOURCE: 1985 National Ambulatory Medical Care Survey data as cited in C.H. Norton and M.A. McManus, "Background Tables on Demographic Characteristics, Health Status and Health Services Utilization," Health Services Research 23(6):725-756, February 1989.

private insurance to supplement their Medicare policies (*513*).

Health Status and Health Care Utilization

Rural elderly residents are more likely than urban elderly residents to have chronic health impairments (41 *v.* 36 percent) (table 2-24) (*645*), and they are more likely to consider themselves in only fair or poor health (table 2-25). It appears that disability due to acute illness is lower among rural than among urban elderly residents, because when both chronic and acute causes of illness are considered, rural elderly residents actually report slightly fewer total days of disability (table 2-26) (*645*).

Health care utilization trends for the rural elderly parallel many of the trends for the urban elderly and for the United States as a whole. For example, the number of physician visits per rural elderly person per year rose between 1983 and 1987, and within the elderly group the frequency of visits rises with age (table 2-27) (*645*). Similarly, the proportion of the rural elderly population who had seen a physician within the past year has risen over time (table 2-28). Nevertheless, physician utilization among the rural elderly continues to lag behind utilization by the urban elderly in nearly every category (*645*). This lower utilization cannot be adequately explained by less illness and disability among the rural elderly. It is consistent, however, with relatively more difficult physical and economic access to physicians for residents of rural areas.

Hospital utilization patterns for rural elderly persons, on the other hand, are not so easily explained by lessened access to hospital facilities. Rural elderly individuals report *more* hospital discharges, but substantially *shorter* average lengths of stay, than do their urban counterparts (table 2-29) (*645*). This pattern seemingly conflicts with the image of hospital scarcity in rural areas, and it cannot be explained by a higher availability of home caregivers for the rural elderly (since just as many nonmetro as metro residents live alone).

A study of Medicare beneficiaries in five States (Alabama, California, Illinois, Montana, and Texas) lends some insight into the enigma. In this study, Medicare hospital admissions decreased 18 percent for urban beneficiaries and a dramatic 22 percent for rural beneficiaries between 1984 and 1986 (*134*).[13] Not only did the rural trend follow the urban trend, but the greater decline in admissions for rural beneficiaries suggests the possibility that rural patients' hospital utilization is becoming more like that of urban patients. Furthermore, when admissions were categorized by type, by far the greatest

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[13] These figures are for admissions adjusted for differences in age and sex distributions. Unadjusted differences were −11 percent for urban and −17 percent for rural beneficiaries.

Table 2-18—Hospital Utilization of Metropolitan and Nonmetropolitan Residents

Measure	Year	Metro	Nonmetro
Hospital discharges (number per 100 persons per year)	1988	8.7	11.4
Average length of hospital stay (days)	1988	6.9	6.0
Total hospital days per 100 population	1988	60.6	68.2
Average number of days per person hospitalized per year	1987	8.3	8.0
Percentage of people hospitalized in past year	1987	8.2%	9.2%
1 episode	1987	6.7%	7.3%
2 episodes	1987	1.1%	1.3%
3 or more episodes	1987	0.4%	0.6%
Percentage of people with emergency visit in past year	1986	18.2%	16.9%

SOURCES: 1986 data from Robert Wood Johnson Foundation, Access to Health Care in the United States: Results of a 1986 Survey (Princeton, NJ: Robert Wood Johnson Foundation, 1987). 1987 data from U.S. Department of Health and Human Services, Centers for Disease Control, National Center for Health Statistics, "Current Estimates From the National Health Interview Survey: United States, 1987," Vital and Health Statistics, Series 10, No. 166. DHHS Pub. No. (PHS) 88-1594 (Washington, DC: U.S. Goverment Printing Office, September 1988). 1988 data from U.S. Department of Health and Human Services, Centers for Disease Control, National Center for Health Statistics, Health, United States, 1989 (Washington, DC: U.S. Government Printing Office, March 1990).

difference in admission rates was for medical conditions treated in the local hospital—particularly "high-variation" conditions, for which there are considerable differences in opinion among physicians regarding the appropriateness of hospitalization. In 1986, rural beneficiaries' admission rates for this group of conditions, which includes such common diagnoses as pneumonia, bronchitis, angina, and gastroenteritis, were 28 percent higher than admission rates for urban beneficiaries (*134*).

Thus, a plausible explanation for the higher hospitalization rates and shorter stays of the rural elderly is that these individuals are more likely than their urban counterparts to be admitted to the hospital for modest medical complaints, observation, and testing. If this explanation is valid it presents a perplexing policy issue, because many of these conditions might, in an urban setting, be considered insufficient reasons for hospitalization (rendering them unqualified for Medicare reimbursement). In rural areas where access to urgent care is difficult, however, it may be that short hospital stays to ensure that a patient's condition is stable, or that the patient is available for tests, are looked upon as good care by the patient and physician (albeit care that is costly to Medicare). It is worth noting that, whatever the reason for the shorter stays, the effect is quite powerful; rural elderly individuals, on average, spend 22 percent fewer days in the hospital during any one stay than do urban elderly persons (*645*).

Migrant and Seasonal Farmworkers

Population Characteristics

U.S. agriculture is heavily dependent for farm labor on the services of migrant and seasonal farmworkers. The estimated 4 million such workers are a culturally diverse group who have in common a set of employment-related health problems and who are characterized by low incomes, a lack of health insurance, a high proportion of individuals from non-English-speaking cultures, and (in the case of migrant workers) high mobility.

Migrant and seasonal farmworkers are individuals "whose principal employment is in agriculture on a seasonal basis [and who have] been so employed within the last 24 months" (Public Law 100-386). Migratory workers are those "who establish . . . for the purposes of such employment a temporary abode," while seasonal workers are those who meet the seasonal definition but are not migrant workers (Public Law 100-386). "Seasonal" is not defined explicitly in this law; the Department of Agriculture defines a "seasonal" farmworker as one who performs 25 to 149 days of farm wage work in 1 year (*726*).

All estimates of the size of the migrant and seasonal farmworker population are imprecise. State data and estimates suggest that there are approximately 4 million farmworkers in the United States and Puerto Rico, although this estimate includes some duplicated counts of migrant farmworkers

Table 2-19—Trends in Hospital Utilization by Metropolitan and Nonmetropolitan Residents, Selected Years, 1964-88

Year	Metro	Nonmetro
Hospital discharges (number per 100 persons per year)		
1964	10.8	11.3
1975	11.9	13.6
1980	11.0	14.1
1985	10.1	11.7
1987	9.3	10.9
1988	8.7	11.4
Average length of hospital stay (days)		
1964	9.4	7.7
1975	7.8	6.8
1980	8.3	7.5
1985	7.2	6.8
1987	7.1	5.8
1988	6.9	6.0
Total hospital inpatient days (per 100 population)		
1964	101.5	87.2
1975	104.3	105.7
1980	91.1	105.8
1985	73.3	79.3
1987	65.6	63.4
1988	60.6	68.2

NOTE: Numbers are adjusted for age (i.e., account for differences in age distributions between metro and nonmetro areas). These data are based on interviews and thus include only patients who were discharged alive.

SOURCES: U.S. Department of Health and Human Services, Centers for Disease Control, National Center for Health Statistics, Health, United States, 1982, Health, United States, 1986, Health, United States, 1988, and Health, United States, 1989 (Washington, DC: U.S. Government Printing Office, 1982; December 1986; March 1989; and March 1990).

(*181*). If ratios from the late 1970s still hold true, approximately 30 percent of these farmworkers (1.2 million) are migrants (*726*).

Farmworkers are culturally diverse. In the East, many are from Puerto Rico, Jamaica, and Haiti. In the Midwest and West, the great majority of migrant farmworkers are Hispanic. Native Americans make up a substantial proportion of the farmworker population in the West and Southwest (*726*).

The living conditions of migrant and seasonal agricultural workers are typically poor. According to one source, the average annual family income in 1983 for migrant workers was about $9,000, significantly below the Federal poverty threshold ($11,000 for a family of four) (*420*).

Health Care Status and Utilization

There are few routinely collected national data on the health status of farmworkers; most that do exist are from farmworkers seen in federally funded migrant health centers (MHCs). Although these clinics serve only an estimated 523,000 persons per year—about 13 percent of the target population (*181*)—they are a vital source of health care services to migrant and seasonal farmworkers and the cornerstone of Federal policies to promote health services to this community.

A 1981 survey of MHCs found that obstetrics and hypertension were the most frequent reasons for visits to these clinics in 1979 and 1980 (table 2-30) (*256*). A 1984 survey of migrant farmworker families identified some major health problems in the population (table 2-31), including:

- ailments (e.g., urinary tract infections) associated with poor sanitation and overcrowded living conditions (e.g., lack of toilets, handwashing facilities, potable drinking water);
- a prevalence of parasitic infections that averaged 20 times greater than in the general population;
- acute and chronic illnesses related to pesticide poisoning; and
- hazards affecting the health of pregnant women and children (*605*).

Most of the workers and their families sought medical care mainly for acute illnesses.

In 1988, 118 MHCs operated clinics in 33 States and Puerto Rico (*181*) The number of MHCs and the number of patient encounters (visits) at those centers have both increased slightly in recent years (table 2-32); in 1988, there were over 4.8 million encounters (about 41,000 per center) (*181*). Encounters specifically from migrant and seasonal farmworkers increased nearly three times as fast as total patient encounters. In 1988, farmworker encounters represented about 35 percent of the total; the number of encounters per farmworker averaged 3.4. Among the States, California has both the largest total number of migrant and seasonal farmworkers and the largest share of Federal MHC funds (table 2-33) (*181*).

SUMMARY AND CONCLUSIONS

Although "rural" is a term with considerable intuitive meaning, two commonly used definitions of the term describe somewhat different populations.

Table 2-20—Age Distribution of Urban and Rural Elderly Residents, 1980

Percent of total population in area that is:	All United States	Urban residents				Rural residents			
				Nonurbanized area					
		All	Urbanized area	10,000 and over	2,500-10,000	All	Farm residents	Metro areas	Nonmetro areas
Age 65 or over	11.3	11.4	10.9	12.9	14.7	10.9	12.7	10.7	13.0
65-74	6.9	6.9	6.6	7.5	8.5	6.9	8.6	6.5	7.9
75-84	3.4	3.5	3.3	4.1	4.7	3.1	3.3	3.2	3.9
85 and over	1.0	1.0	0.9	1.3	1.5	0.9	0.8	0.9	1.1

SOURCE: U.S. Department of Commerce, Bureau of the Census, 1980 Census: General Social and Economic Characteristics, vol. 1 (Washington, DC: U.S. Government Printing Office, September 1981).

Most national statistical information is available by the county-based metro/nonmetro designations, because county borders are relatively stable and enable consistent comparisons over time. Unfortunately, simple metro/nonmetro comparisons often blur important differences among populations that affect the perception of their health and other characteristics. Good information on health status and health programs is vital to the evaluation of programs, but when only metro/nonmetro distinctions are analyzed, information may be insufficient to assess health improvements adequately.

In general, the picture of the rural population over the past decade has been one of sluggish and erratic economic and population growth. Improvements in the standard of living of rural residents have generally lagged behind those of urban residents, and rural poverty has become a more pressing problem. These generalities obscure crucial regional and local differences. The heavy dependence of many regions and rural communities on single industries make them especially vulnerable to economic changes affecting those industries. Counties economically dependent on agriculture fared badly during the early 1980s, for example, while rural counties that serve as retirement communities have been relatively successful at improving their economic well-being. The South continues to be a reservoir of rural poverty.

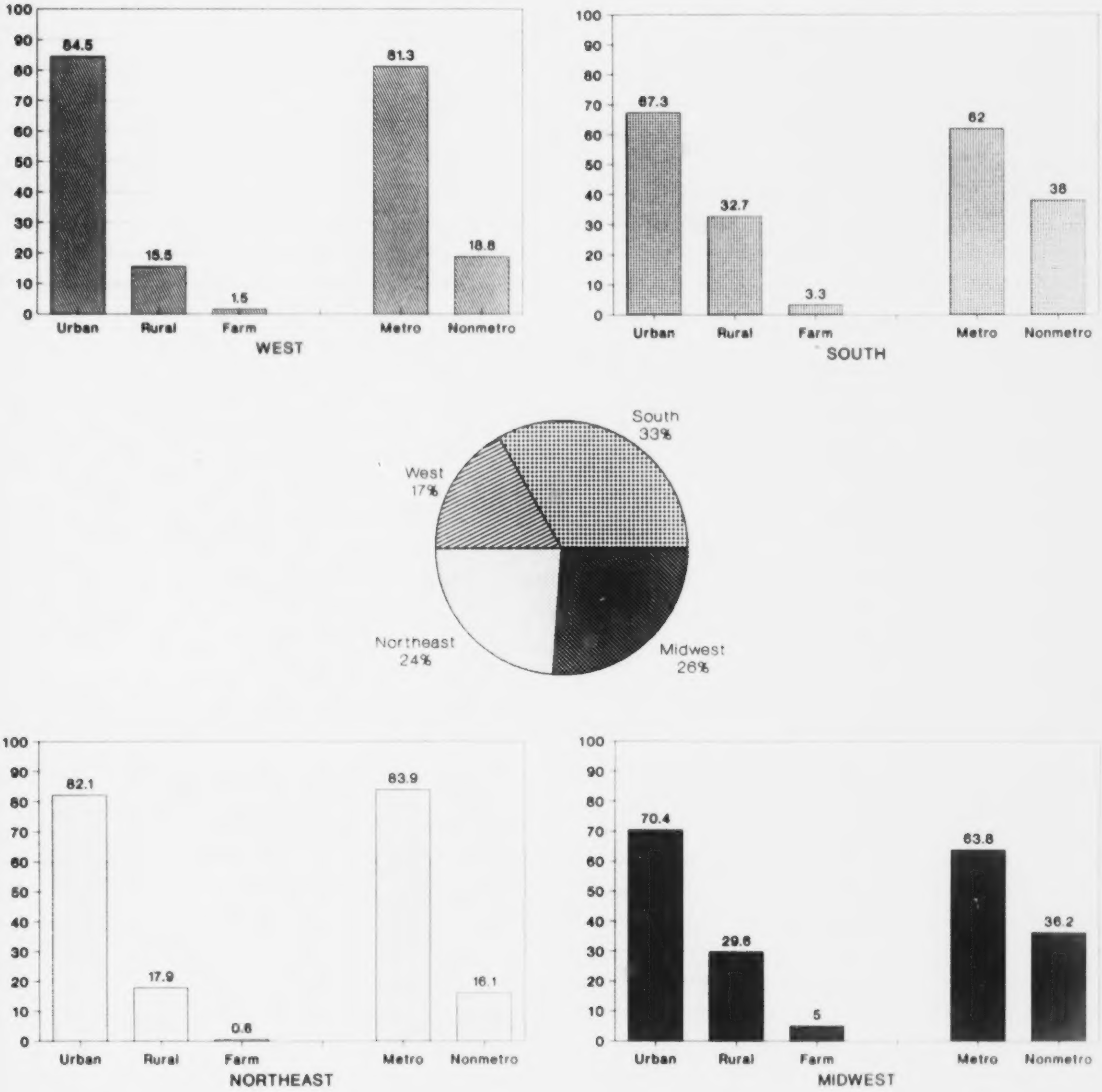
Despite persistent differences in important factors such as income and education, rural residents exhibit fewer consistent indicators of poor health than might be expected. Mortality rates are lower in rural than in urban areas, the most spectacular exception being for accidental deaths. However, rural populations are characterized by chronic impairments and poor self-perceptions of health to a substantially greater extent than urban populations. The relatively high prevalence of chronic disability and fatal injuries, combined with a lower prevalence of some key preventive health behaviors (such as seatbelt use), suggests that preventive and therapeutic health programs addressing these areas might be particularly appropriate to rural populations.

Rural residents have relatively low overall utilization rates for hospitals and physicians, despite their high number of hospital admissions. Lower rural incomes, combined with relatively low insurance coverage of nonelderly rural populations, suggest that these utilization patterns may be partially attributable to financial access. The very low rates of Medicaid coverage among poor rural residents, especially farm residents, is of particular concern. Interestingly, despite continued limitations in financial access to health care, trends in rural health care utilization over time have paralleled urban patterns, albeit at a lower level. Physician visits have increased, and inpatient hospital use has decreased, for both groups.

The elderly are disproportionately represented in nonmetro counties, with the South and Midwest having particularly high concentrations of elderly rural residents. The broad brush of Medicare has resulted in few elderly persons without any health insurance, but rural elderly residents are less likely than their urban counterparts to hold private insurance supplements to their Medicare policies. The health care utilization patterns of the rural elderly parallel those of rural residents generally, with fewer physician visits but more hospitalizations—particularly short hospitalizations—than characterize their urban counterparts.

Although their exact distribution across metro and nonmetro areas is unknown, migrant and seasonal farmworkers are another population of particular

Figure 2-5—Regional Distribution of Urban and Rural Elderly Residents, 1980



SOURCE: Office of Technology Assessment, 1990. Data from U.S. Department of Commerce, Bureau of the Census, *1980 Census: General Social and Economic Characteristics*, vol. 1 (Washington, DC: U.S. Government Printing Office, 1981).

concern to rural health services. The health of these roughly 4 million farmworkers is greatly affected by diseases related to their living and working conditions. Federally funded MHCs appear to be a very important source of care to this population, even though only a relatively small proportion of farmworkers seek care in these centers.

Health status and financial access are only two of the major contributors to health care utilization. A third potential contributor—availability of health resources—is the topic of most of the remainder of this report.

Table 2-21—Percent of Urban and Rural Persons Who Are Elderly, by Region, 1980

	Entire region	Urban residents	Rural residents All	Rural residents Farm	Metro areas	Nonmetro areas
South	11.2	11.3	11.1	15.8	10.4	12.9
West	9.9	10.0	9.6	10.2	9.8	10.6
Northeast	12.3	12.8	10.6	9.8	12.2	13.2
Midwest	11.4	11.3	11.4	11.6	10.2	14.1

SOURCE: U.S. Department of Commerce, Bureau of the Census, 1980 Census: General Social and Economic Characteristics, vol. 1 (Washington, DC: U.S. Government Printing Office, September 1981).

Table 2-22—Income Characteristics of Elderly Urban and Rural Residents (age 65 and older), 1979

	Metro			Nonmetro		
	Total	Urban[a]	Rural[a]	Total	Urban[a]	Rural[a]
Median income	$13,421	$13,775	$11,426	$10,157	$11,165	$9,633
Percent of elderly with incomes below Federal poverty level	12.4%	12.1%	15.2%	20.7%	18.4%	22.2%
Percent of elderly with incomes below 125% of Federal poverty level	20.7%	20.3%	23.8%	30.9%	28.5%	32.6%

[a] As defined by the Census Bureau.

SOURCE: U.S. Department of Commerce, Bureau of the Census, 1980 Census: General Social and Economic Characteristics, vol. 1 (Washington, DC: U.S. Government Printing Office, September 1981.)

Table 2-23—Living Characteristics of Elderly Urban and Rural Residents, 1980

		Urban residents				Rural residents			
				Nonurbanized area					
Living arrangement	All United States	All	Urbanized area	10,000 and over	2,500-10,000	All	Farm residents	Metro areas	Nonmetro areas
Living with others	66.5	64.8	65.9	60.2	60.8	71.6	84.2	66.3	66.3
Head of household/ living with spouse	55.6	53.3	53.5	52.1	53.3	62.4	74.6	54.6	58.3
Living with other relatives	8.8	9.2	10.0	6.3	5.9	7.7	8.6	9.8	6.5
Living with non-relatives	2.1	2.3	2.4	1.8	1.6	1.5	1.0	2.3	1.5
Living alone	27.7	28.8	28.3	31.3	30.6	24.4	15.8	27.6	27.9
Living in group quarters	5.8	6.4	5.8	8.5	8.6	4.1	--	5.8	5.8

SOURCE: U.S. Department of Commerce, Bureau of the Census, 1980 Census: General Social and Economic Characteristics, vol. 1 (Washington, DC: U.S. Government Printing Office, September 1981).

Table 2-24—Percent of Metropolitan and Nonmetropolitan Elderly Limited in Activity Due to Chronic Conditions, By Age, 1987

	Metro			Nonmetro		
	≥65	65-74	≥75	≥65	65-74	≥75
Total with limitation of activity	36.2	33.5	40.7	41.0	38.2	45.3
Experienced limitation but not in major activity	13.6	11.9	16.5	17.4	15.3	20.7
Limited in amount or kind of major activity	12.7	11.2	15.1	13.2	11.5	15.9
Unable to carry out major activity	9.9	10.4	9.0	10.3	11.3	8.6

SOURCE: U.S. Department of Health and Human Services, Centers for Disease Control, National Center for Health Statistics, Hyattsville, MD, unpublished data from the National Health Interview Survey provided by D. Makuc, Oct. 4, 1989.

Table 2-25—Self-Assessed Health Status Among the Metropolitan and Nonmetropolitan Elderly, 1987

	Excellent	Very good	Good	Fair or poor
Metro residents				
Age 65 and over	16.3%	21.3%	32.6%	29.8%
Age 65-74	17.7	22.2	32.8	27.2
Age 75 and over	14.0	19.6	32.3	34.0
Nonmetro residents				
Age 65 and over	13.1	20.1	33.4	33.4
Age 65-74	13.9	19.8	35.3	31.0
Age 75 and over	11.8	20.5	30.6	37.2

SOURCE: U.S. Department of Health and Human Services, Centers for Disease Control, National Center for Health Statistics, Hyattsville, MD, unpublished data from the National Health Interview Survey provided by D. Makuc, Oct. 4, 1989.

Table 2-26—Rate of Restricted Activity Days Among the Metropolitan and Nonmetropolitan Elderly Due to Acute and Chronic Conditions, by Age, 1987 (number of days per person)

	Age group			
	65 and over	65-69	70-74	75 and over
Restricted activity				
All metro	30.4	25.1	31.3	34.6
Central city	33.8	28.3	36.0	36.7
Noncentral city	27.7	22.9	27.6	32.7
All nonmetro	30.2	24.1	30.7	35.1
Nonfarm	30.7	24.3	32.2	35.0
Farm	24.4	21.8	13.3	36.9
Confined to bed				
All metro	14.3	11.8	13.8	16.9
Central city	15.9	13.5	15.1	18.3
Noncentral city	13.0	10.6	12.7	15.6
All nonmetro	13.2	10.4	12.7	15.9
Nonfarm	13.3	10.6	13.6	15.3
Farm	12.5	7.8	2.7	26.1

SOURCE: U.S. Department of Health and Human Services, Centers for Disease Control, National Center for Health Statistics, Hyattsville, MD, unpublished data from the National Health Interview Survey provided by G. Hendershot, November 1989.

Table 2-27—Utilization of Physician Services by Metropolitan and Nonmetropolitan Elderly Persons: Average Annual Number of Physician Visits Per Person, 1983 and 1987

	Physician visits per person [a]			
	1983		1987	
Age group	Metro	Nonmetro	Metro	Nonmetro
65 and over......	7.9	7.1	9.1	8.2
65-74..........	7.5	6.8	8.8	7.3
75 and over....	8.5	7.7	9.7	9.7

[a] Data for 1983 include only visits for which the location of visit is known. Visits in 1987 include those in unspecified places as well.

SOURCE: U.S. Department of Health and Human Services, Centers for Disease Control, National Center for Health Statistics, Hyattsville, MD, unpublished data from National Health Interview Survey provided by D. Makuc, Aug. 28, 1989.

Table 2-28—Utilization of Physician Services by Metropolitan and Nonmetropolitan Elderly Persons, 1964, 1982, and 1987

	Percent of population with visits within past year					
	1964		1982		1987	
Age group	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro
65 and over..................	69.3	70.4	83.0	80.7	85.5	83.6
65-74......................	68.8	68.9	81.4	78.0	84.1	80.7
75 and over................	70.4	73.2	85.7	85.1	87.7	88.1

SOURCE: U.S. Department of Health and Human Services, Centers for Disease Control, National Center for Health Statistics, Hyattsville, MD, unpublished data from the National Health Interview Survey provided by D. Makuc, Aug. 28, 1989.

Table 2-29—Hospital Utilization by Elderly Metropolitan and Nonmetropolitan Persons, 1987[a]

	Discharges (per 100 population)		Average length of stay		Days of care (per 100 population)	
Age group	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro
65 and over...........	25.4	26.2	8.8	6.9	221.9	181.0
65-74................	22.4	23.6	8.7	6.9	194.8	162.2
75 and over.........	30.1	30.2	8.8	7.0	265.7	210.2

[a] Data are based on interviews and thus do not include hospital stays of persons who were not discharged alive. Metro and nonmetro status refers to residence of respondent, not location of hospital used.

SOURCE: Unpublished data from the National Health Interview Survey, provided by D. Makuc, U.S. Department of Health and Human Services, Centers for Disease Control, National Center for Health Statistics, Hyattsville, MD, Aug. 28, 1989.

Table 2-30—Most Frequent Diagnoses Reported by 60 Federally Funded Migrant Health Centers, 1980[a]

Diagnosis/reason for visit	Number of encounters
Obstetrics	36,125
Hypertension	32,067
Acute upper respiratory infection	30,364
Otitis media	17,931
Anemia	17,889
Diabetes mellitus	17,266
Urinary tract infection	10,705
Family planning	6,827
Obesity	4,322
Trauma	4,132
Dermatitis	3,727
Heart disease	2,671
Gastroenteritis	2,594

[a] Not all of the 60 centers responding to the survey had complete data.

SOURCE: W. Hicks, "Migrant Health: An Analysis," Primary Care Focus, publication of the National Association of Community Health Centers, July/August 1982, as cited in V.A. Wilk, The Occupational Health of Migrant and Seasonal Farmworkers in the United States (Washington, DC: Farmworker Justice Fund, Inc., 1986).

Table 2-31—Major Illnesses Reported by Migrant Farmworker Families, 1984

Illness	Percent of families reporting at least one member with specified illness during the past year[a]
Eye problems	35.2
Depression	23.1
Anemia	21.7
Arthritis	18.9
High blood pressure	16.8
Stillbirth	16.2
Kidney problems	14.8
Obesity	14.3
Problems during pregnancy	13.4
Asthma	12.5
Intestinal parasites	11.3
Deafness	11.2
Heart problems	11.2
Ulcers	9.4
Sunstroke	9.4
Diabetes	7.5
Cancer	4.7
Epilepsy	4.7
Pesticide poisoning	4.3
Liver damage	3.8
"Lazy eye"	3.8
Tuberculosis	3.8
Infertility	3.2
Sickle cell anemia	2.9
Alcoholism	1.9
Polio	0.9

[a] Survey included 109 migrant farmworker families.

SOURCE: R.T. Trotter, "Project HAPPIER Final Report of Survey Results: Migrant Family Survey," Sept. 21, 1984, as cited in V.A. Wilk, The Occupational Health of Migrant and Seasonal Farmworkers in the United States (Washington, DC: Farmworker Justice Fund, Inc., 1986).

Table 2-32—Utilization of Federally Funded Migrant Health Centers, 1984-88

	1984	1985	1986	1987	1988	Percent change, 1984-88
Number of centers[a]	114	120	125	119	118[b]	3.5
Total center encounters (in millions)	4.52	4.08	4.64	4.72	4.85	7.2
Total farmworker encounters[c] (in millions)	1.42	1.43	1.54	1.67	1.70	19.9
Estimated total farmworker encounters per person[d]	3.36	3.36	3.43	3.50	3.40	1.2

[a] Number of health centers receiving Federal funds authorized under Section 329 of the Public Health Service Act.

[b] Of the 118 centers, 117 were reported.

[c] Migrant and seasonal farmworkers only.

SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Care Delivery and Assistance, unpublished data provided by J. Egan, Rockville, MD, March 1990.

Table 2-33—State Distribution of Migrant and Seasonal Farmworkers (MSFW) and Federal Migrant Health Center (MHC) Funds, Fiscal Year 1988

State	MSFW population	Percent MSFW population	MSFW users of MHCs		Impact ratio	MHC funds, 1988	
			Number	Percent		Dollars[a]	Percent
Alabama	6,483	0.2	--	0.0	0.0%	--	0.0
Alaska	--[b]	0.0	--	0.0	0.0	--	0.0
Arizona	31,795	0.8	9,370	1.8	29.5	650,011	1.6
Arkansas	--	0.0	--	0.0	0.0	--	0.0
California	1,362,534	32.7	107,267	20.5	7.9	6,607,069	16.4
Colorado	49,347	1.2	26,374	5.0	53.5	2,017,909	5.0
Connecticut	9,421	0.2	--	0.0	0.0	--	0.0
Delaware	5,397	0.1	5,027	1.0	93.1	881,440	2.2
Florida	435,373	10.4	77,173	14.8	17.7	5,947,653	14.8
Georgia	93,604	2.2	1,598	0.3	1.7	143,258	0.4
Hawaii	--	0.0	--	0.0	0.0	--	0.0
Idaho	119,968	2.9	12,935	2.5	10.8	465,026	1.2
Illinois	20,840	0.5	5,894	1.1	28.3	454,985	1.1
Indiana	7,716	0.2	5,022	1.0	65.1	460,870	1.1
Iowa	34,230	0.8	1,734	0.3	5.1	171,961	0.4
Kansas	18,533	0.4	925	0.2	5.0	165,218	0.4
Kentucky	--	0.0	--	0.0	0.0	--	0.0
Louisiana	--	0.0	--	0.0	0.0	--	0.0
Maine	8,660	0.2	230	0.0	2.7	--	0.0
Maryland	4,267	0.1	--	0.0	0.0	--	0.0
Massachusetts	7,813	0.2	100	0.0	1.3	78,000	0.2
Michigan	67,227	1.6	26,676	5.1	39.7	2,535,192	6.3
Minnesota	13,344	0.3	9,254	1.8	69.4	863,660	2.2
Mississippi	--	0.0	--	0.0	0.0	--	0.0
Missouri	20,324	0.5	--	0.0	0.0	130,346	0.3
Montana	13,026	0.3	3,641	0.7	28.0	250,172	0.6
Nebraska	18,756	0.5	1,422	0.3	7.6	224,475	0.6
Nevada	--	0.0	--	0.0	0.0	--	0.0
New Hampshire	726	0.0	--	0.0	0.0	--	0.0
New Jersey	13,522	0.3	3,314	0.6	24.5	182,710	0.5
New Mexico	9,255	0.2	1,081	0.2	11.7	104,197	0.3
New York	30,811	0.7	3,617	0.7	11.7	381,164	1.0
North Carolina	344,944	8.3	25,353	4.9	7.4	1,477,681	3.7
North Dakota	15,000	0.4	--	0.0	0.0	--	0.0
Ohio	11,621	0.3	3,483	0.7	30.0	540,000	1.3
Oklahoma	--	0.0	1,597	0.3	0.0	193,468	0.5
Oregon	128,564	3.1	22,682	4.3	17.6	1,449,900	3.6
Pennsylvania	24,711	0.6	5,126	1.0	20.7	601,000	1.5
Puerto Rico	231,889	5.6	73,271	14.0	31.6	3,595,126	8.9
Rhode Island	459	0.0	--	0.0	0.0	--	0.0
South Carolina	18,560	0.4	4,050	0.8	21.8	558,008	1.4
South Dakota	--	0.0	--	0.0	0.0	--	0.0
Tennessee	6,571	0.2	741	0.1	11.3	125,000	0.3
Texas	500,138	12.0	42,116	8.1	8.4	5,221,106	13.0
Utah	8,983	0.2	2,957	0.6	32.9	289,825	0.7
Vermont	1,785	0.0	--	0.0	0.0	--	0.0
Virginia	15,079	0.4	--	0.0	0.0	--	0.0
Washington	442,444	10.6	31,247	6.0	7.1	2,658,441	6.6
West Virginia	2,700	0.1	2,825	0.5	104.6	300,000	0.8
Wisconsin	8,199	0.2	2,193	0.4	26.8	364,293	0.9
Wyoming	6,800	0.2	2,754	0.5	40.5	161,756	0.4
Total	4,171,419	100.0%	523,049	100.0%	12.54%	40,250,920	100.0%

[a] The total funding shown does not reflect multistate, hospital, and miscellaneous awards, which equalled $3,215,080. The grand total for fiscal year 1988 was $43,466,000.

[b] Dashes indicate that none were identified by the State.

SOURCE: J. Egan, U.S. Department of Health and Human Services, Health Resources and Services Administration, Office of Migrant Health, personal communication, March 1990.

Chapter 3

Federal Programs Affecting Rural Health Services

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Chapter 3

Federal Programs Affecting Rural Health Services

INTRODUCTION

Federal programs affect the availability and provision of rural health services in a multitude of ways. This chapter presents a brief overview of major health programs that fall into four categories:

1. *Programs whose primary function is to pay for direct health services*—specifically, Medicare and Medicaid. These two programs fund a substantial amount of rural health care, and consequently their policies can have a large effect on the availability and provision of services.[1]
2. *Federal block grant programs that provide States with resources to fund and provide services.* Three major programs that affect health care generally—the Maternal and Child Health block grant, the Preventive Health and Health Services block grant, and the Alcohol, Drug Abuse, and Mental Health block grant—are described here.
3. *Federal programs whose primary purpose is to augment the health resources available to underserved areas and populations.* Most of these programs, which augment personnel, facility, and planning resources, are administered through the U.S. Department of Health and Human Services' (DHHS's) Health Resources and Services Administration (HRSA).
4. *Health policy and research.* The Federal Government has recently undertaken to consolidate some health research and policy efforts, including efforts focused on rural health. Notable current efforts include those of the Agency for Health Care Policy and Research and the Office of Rural Health Policy.

Table 3-1 presents recent appropriation figures for block grant and health resources programs.

HEALTH CARE FINANCING PROGRAMS

Medicare

Medicare is a Federal health insurance program that serves approximately 34 million elderly and disabled persons and has an estimated 1990 outlay of $108 billion (*146,201*). It is divided broadly into two parts, distinguished by their financing mechanisms. Part A (Hospital Insurance) is financed through Social Security taxes and covers hospital inpatient, skilled nursing facility, and home health services. Part B (Supplementary Medical Insurance) is financed through a monthly premium and general revenues and covers outpatient and physician services and nonhospital medical equipment. Table 3-2 summarizes Medicare's basic medical care coverage and the basic limits and copayments it imposes.

Because Medicare pays for the health care services used by a large proportion of the population, and because its payment and regulatory policies are often used as models by other third-party payers, it can have a major effect on health care providers. In addition, Medicare explicitly distinguishes between rural and urban providers when paying for services. The discussion below briefly describes some of these payment policies.

Hospital Inpatient Payment

Basic Payment Methods—Hospitals are reimbursed for inpatient services provided to Medicare beneficiaries according to a prospective payment system (PPS), under which a hospital is paid a fixed amount for treating each patient (Public Law 98-21).[2] This payment amount is linked to the primary diagnosis of the patient and the diagnosis-related group (DRG) to which the patient is assigned. The system is based on averages and is intended to foster efficiency; if a hospital is able to keep its own costs

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[1] A number of other Federal programs also finance or provide direct health care (e.g., the Department of Veterans Affairs and the Civilian Health and Medical Program of the Uniformed Services). However, their policies have much less impact on rural health services and are thus not described here. The Indian Health Service also provides and funds services to the significant proportion of the rural population who are Native Americans; this program is the topic of a previous OTA report and is not described in this chapter (*616*).

[2] Certain specialty hospitals (psychiatric, cancer, rehabilitation, and children's hospitals) are exempt from the prospective payment system.

Table 3-1—Appropriations for Selected Federal Programs Affecting Rural Health Services: Fiscal Years 1980, 1988, 1989, and 1990

	Appropriation ($ millions)			
	1980	1988	1989	1990
Block grant programs				
Maternal and Child Health Services	NA	526.57	554.27	553.63
Preventive Health and Health Services[a]	NA	85.21	84.26	83.18
Alcohol, Drug Abuse, and Mental Health Services	NA	643.20[b]	805.59[b]	1,192.85[b]
Other programs that affect health care facilities and services				
Community Health Centers	259.96	415.31[c,d]	435.36[c]	458.89[c]
Migrant Health Centers	37.63	43.47	45.65	47.37
Black Lung Clinics	3.80	3.26	3.22	3.65
Rural Health Care Transition Grant Program	NA	NA	8.89	17.76
Programs that affect health personnel supply and distribution				
National Health Service Corps[e]	153.58	42.61	47.77	50.72
Area Health Education Centers	21.0	17.23	17.03	18.13
Border Health Education Centers[f]	NA	NA	NA	3.93
Advanced Nurse Training Programs	12.0	16.76	17.29	12.77
Advanced Nurse Traineeships	13.0	12.45	12.84	13.50
Allied Health Grants and Contracts	5.14	0	0	0.74
Interdisciplinary Traineeships for Rural Areas[f]	NA	NA	.80[f]	2.21
Nurse Anesthetist Traineeships and Programs	NA	0.77	0.79	1.13
Nurse Practitioner and Nurse Midwifery Programs	13.0	11.49	11.85	13.43
Nursing Special Projects	15.0	11.68	12.05	12.85
Nurse Undergraduate Scholarships[f]	NA	NA	NA	2.95
Physician Assistant Training Programs	9.10	4.60	4.54	4.79
Family Medicine Residencies[g]/General Dentistry[h]	36.50	35.41	34.98	36.69
Family Medicine Departments (Undergraduate)	9.50	6.70	6.62	6.68

KEY: NA = not applicable.

[a] Excludes appropriation for program administrative support.

[b] The Alcohol and Drug Abuse Treatment and Rehabilitation (ADTR) block grant was combined with the Alcohol, Drug Abuse, and Mental Health Services (ADMS) block grant in 1989 (Public Law 100-609, as amended by Public Law 101-93). Fiscal year 1988 and 1989 figures in this table include appropriations for both ADMS and ADTR block grants, while the 1990 appropriation represents the new combined appropriations.

[c] Includes Infant Mortality Initiative funds.

[d] Includes $12.25 million reprogrammed from the National Health Service Corps (NHSC) Field Program to Community Health Centers (CHCs) to pay the salaries of NHSC assignees in CHCs. Portions of the original NHSC Field Program appropriations were reprogrammed in this manner from 1983 through 1988.

[e] Includes appropriations for National Health Service Corps Scholarship, Loan Repayment, and Field Programs.

[f] New program in 1990. The Interdisciplinary Traineeships for Rural Areas Program was also appropriated $0.80 million in fiscal year 1989 for a study of rural health manpower and education needs.

[g] Includes funds for faculty development, predoctoral training, and residency training.

[h] Until 1990, general dentistry training funds were part of the appropriation for family medicine training. Fiscal year 1990 appropriations in this table include appropriations for both programs.

SOURCE: Office of Technology Assessment, 1990.

lower than the average costs represented by the DRG payment, it may keep the difference.

The basic DRG rates are adjusted according to a myriad of factors that depend on the location of the hospital, among other things, to determine the final payment amount. As summarized in box 3-A, total Medicare inpatient payments received by a hospital over the course of a year are the sum of:

- total DRG payments, which are the sum of the basic DRG payments, payments for transfer cases, and "outlier" payments;
- additional payments for teaching and other activities; and
- pass-through payments for capital, direct medical education, and certain other expenses.

The components of the basic DRG payments differentiate explicitly between rural and urban hospitals. For each patient treated by the hospital, the basic DRG payment is the product of the basic standardized payment amount, the wage index, and

Table 3-2—Summary of Major Medicare Benefits, Copayments, and Coverage Limitations, 1990

Benefit	Copayments and coverage limitations
Part A benefits	
Hospital acute inpatient care	▪ Coverage limited to 90 days per spell of illness,[a] plus 60-day "lifetime reserve." ▪ Coverage begins after patient pays $592 deductible (per spell of illness). ▪ No coinsurance for days 1 through 60. Patient must pay coinsurance equal to 25% of deductible for days 61 through 90. ▪ Patient pays coinsurance equal to 50% of deductible for each of the 60 "lifetime reserve" days. After lifefime reserve is used up, patient is responsible for 100% of the hospital bill.
Psychiatric inpatient care	▪ Same as acute inpatient but limited to 190 total days of coverage.
Skilled nursing facility care	▪ Limited to 100 days of care per spell of illness. ▪ Patient must pay coinsurance equal to 1/8 of hospital deductible after day 20 ($74 in 1990). ▪ Does not cover custodial-only care in a nursing facility. ▪ Patient must have been hospitalized for at least 3 consecutive days within past 30 days for benefit to apply.
Home health services[b]	▪ Patient must be homebound and in need of only part-time or intermittent nursing (no limit on other visits). ▪ Does not cover custodial services (e.g., housekeeping, cooking, bathing). ▪ Services must be furnished under a physician's plan of care. ▪ No coinsurance or deductible for most home health services; 20% coinsurance on new durable medical equipment.
Hospice services	▪ Limited to 210 days of hospice care for terminally ill patients. ▪ Patient must pay coinsurance equal to 5% of drug costs or $5, whichever is less. ▪ Patient must also pay coinsurance equal to 5% of Medicare's cost for daily respite care services, up to a limit equal to the hospital inpatient deductible. ▪ Patient must give up the right to most other Medicare benefits to receive hospice services (this election is revocable).
Part B benefits	
Physician and other medical services	▪ Patient pays 20% coinsurance on allowed charges after initial annual part B deductible (deductible is $75 in 1990). ▪ Patient pays any part of bill that exceeds allowed charge if physician does not accept assignment (up to a maximum). ▪ Benefit includes only diagnostic and treatment services; most preventive services not covered.[c]
Hospital outpatient care	▪ Patient pays 20% coinsurance on charges after meeting part B deductible.
Ambulatory surgical center (ASC) care	▪ Patient pays 20% coinsurance on applicable ASC payment amount after meeting part B deductible.
Mental health services	▪ Subject to $250 annual Medicare payment limit.

[a] A "spell of illness" begins with the first day of hospitalization and ends when the beneficiary has not been an inpatient in a hospital or skilled nursing facility for 60 consecutive days.

[b] Home health services are covered under both parts A and B.

[c] Exceptions are vaccine for pneumococcal pneumonia, vaccine for hepatitis B for high-risk individuals, routine Pap smears (as of July 1990), and preventive services provided to Medicare beneficiaries enrolled in health maintenance organizations.

SOURCE: Office of Technology Assessment, 1990. Information from Commerce Clearing House, Inc., Medicare and Medicaid Guide (Chicago, IL: Commerce Clearinghouse, Inc., 1990).

the DRG weight. The DRG weight depends only on the diagnosis of the patient. The standardized amount and the wage index, however, distinguish among hospitals on the basis of whether or not the hospital is located in a metropolitan statistical area (see box 3-A).

Additional payments are also made to certain hospitals for other costs specific to the type of hospital and the population it serves. These include:

- payments to account for the indirect costs to a hospital of providing medical education to physicians,

Box 3-A—Summary of Formula for Medicare Payment to Hospitals for Inpatient Care, January 1990

(1) (2) (3)
Total payments = *total diagnosis-related group (DRG) payments + additional payments + pass-through payments*

(a) (b) (c)
(1) *Total DRG Payments = regular DRG payments + payments for transfers + outlier payments*

(a) *Regular DRG payment* = standardized amount × wage index × DRG weight

- **The standardized amount** varies by location, with the difference between nonmetro and "all other" metro areas scheduled to be gradually phased out. In 1989 these basic amounts were:
  $3,396.56 in metro areas of over 1 million population;
  $3,342.79 in all other metro areas; and
  $3,107.20 in nonmetro areas.
- **The wage index** applies only to the labor portion of the standardized amount (the labor portion is 74.4 percent of that amount). The 324 metro areas each have a unique wage index. There are also 48 nonmetro wage indexes, one for all the nonmetro counties in each State (Rhode Island and New Jersey have only metro areas).
- **The DRG weight** depends on the diagnosis of the patient. There are 474 separate weights.

(b) *Payments for transfers*:

- Hospitals receive a per diem payment for each day before a patient is transferred (up to the DRG payment).
- Per diem rate = regular DRG rate + the national average length of stay for that DRG.

(c) *Outlier payments*:

- Payments are the greater of day or cost payment.
- Day payments are 60 percent of the per diem rate for that DRG for each day above a set day outlier threshold.
- Cost outliers payments are 75 percent of excess cost of case over set cost outlier threshold for that DRG in that hospital.
- Outlier payments are financed with a Federal set-aside of 5 to 6 percent of total DRG payments.
- Payments are financed from separate pools for metro and nonmetro hospitals.

(2) *Additional payments* go only to qualifying hospitals.

- **The teaching adjustment** goes to teaching hospitals to compensate for the indirect costs of medical education. The payment is the total DRG payment times an adjustment factor; the adjustment factor equals approximately 7.7 percent for each 10 percent increase in the hospitals intern-and-resident-to-bed ratio.
- **The disproportionate share adjustment** goes to hospitals serving high numbers of low-income patients. The factor for this adjustment is based not only on the proportion of low-income patients but also on a formula that differs depending on a hospital's location and size. Adjustment factors for small hospitals are generally lower than those for large hospitals.
- **The ESRD additional payment** goes to hospitals serving end-stage renal disease patients with unrelated illnesses. The payment is a fixed amount per patient per week ($335) for inpatient dialysis services.

(3) *Pass-through payments* go to all hospitals incurring relevant costs.

- **Capital costs** (for rent, interest, depreciation) are paid at 85 percent of Medicare's share of actual costs.
- **Direct costs of medical education programs** (e.g., for residents' salaries) are reimbursed at a payment rate that equals a hospital-specific fixed amount per full-time equivalent (FTE) resident, times the current number of FTE residents, times Medicare's share of inpatient days.
- **Direct costs of other hospital-based education programs** are reimbursed for reasonable costs actually incurred.
- **Other pass-through payments** are made for reasonable organ procurement costs and for bad debts of Medicare beneficiaries.

SOURCE: Adapted from Prospective Payment Assessment Commission, Washington, DC, "Hospital Payment Under PPS During FY 1990," unpublished briefing document, 1989.

- payments to hospitals serving a disproportionate share of low-income patients, and
- payments for the costs of serving end-stage renal disease patients with unrelated illnesses.

Although a few rural hospitals are teaching hospitals, and some are eligible for the disproportionate share payments, urban hospitals are more likely than rural ones to provide these services and to qualify for the additional payments or adjustments (*491*).

Finally, hospitals are reimbursed for capital and other "pass-through" expenses that are not affected by the DRG rate. In the initial years of PPS, hospitals were reimbursed at cost for the Medicare share of their capital expenses, but in the past few years hospitals have not been able to recoup fully these expenses due to congressionally mandated limits on Medicare payment. In 1990, capital is reimbursed at 85 percent of Medicare's share of the cost (*140*).

Payments to Special Categories of Hospitals—Four categories of rural hospitals qualify for special consideration under PPS: rural referral centers, sole community hospitals, Essential Access Community Hospitals, and Rural Primary Care Hospitals.

Rural referral centers (RRCs) are usually large, tertiary-care rural hospitals that serve a wide geographic area. To qualify for the designation, hospitals must meet certain size and referral characteristics (see box 3-B). RRCs are assumed to have cost profiles more similar to urban facilities than to other rural hospitals. Thus, their DRG payments are based on the standardized amount applicable to metropolitan areas of fewer than 1 million residents, rather than being based on the lower rural standardized amount.

The initial legislation stipulated that RRCs must be recertified every 3 years to continue to qualify for higher payments. Subsequent legislation (Public Law 99-509, Public Law 101-239) made qualification automatic for all current RRCs until October 1, 1992. As of April 1990, 245 rural hospitals were designated RRCs (*448*).

Sole community hospitals (SCHs) represent the other end of the rural hospital spectrum. These are hospitals, usually small, that are presumed to be the sole source of local inpatient hospital care because of their isolated location, weather conditions, travel conditions, or the absence of other hospitals (see box 3-B). Because the closure of these hospitals would leave their Medicare patients without a local source of care, they qualify for special consideration.

Effective April 1, 1990 (Public Law 101-239), hospitals that are designated SCHs receive Medicare PPS payments that are the highest of:

- the full Federal PPS rate,
- 100 percent of a target amount based on the hospital's 1982 costs, or
- 100 percent of a target amount based on the hospital's 1987 costs.[3]

An additional payment may be provided if the SCH experiences a decrease of more than 5 percent in its total inpatient discharges due to circumstances beyond its control. Unlike other hospitals, SCHs are reimbursed for 100 percent of Medicare-related capital costs.

As of April 1990, 375 hospitals were designated SCHs (*448*). Some hospitals that could qualify for this designation have not sought it because until the new SCH payment options were passed in late 1989, their payments were higher under the usual PPS rates (*488*). These eligible but undesignated hospitals are now also eligible to receive payment under SCH rules, as are small (fewer than 100 beds) rural hospitals for whom Medicare patients make up 60 percent of the total caseload[4] (Public Law 101-239).

Essential Access Community Hospitals (EACHs) and Rural Primary Care Hospitals (RPCHs) are new designations, introduced in 1989 (Public Law 101-239). RPCHs will be small facilities providing emergency and very limited inpatient care that will initially receive cost-based reimbursement. (An alternative payment system specific to these facilities is to be developed.) EACHs are envisioned as larger facilities that provide backup to primary care hospitals; designated facilities will automatically qualify for SCH payment rules (as described above) (Public Law 101-239). EACH and RPCH designations will be limited to hospitals in only a few States (see ch. 8). No designations had been made as of April 1990.

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[3] Prior to April 1990, SCHs were paid on a prorated basis in which only 25 percent of the per-case payment was based on regional DRG rates; the remaining 75 percent was based on the hospital's actual costs.

[4] Small rural hospitals in which Medicare patient days are 60 percent or more of total patient days also qualify, even if their actual proportion of Medicare patients is less than 60 percent (Public Law 101-239).

Box 3-B—Qualifying Criteria for Rural Referral Centers and Sole Community Hospitals

A hospital qualifies as a *rural referral center* if it is located in a nonmetro area and meets any one of the following three specifications (42 CFR 412.96).

1. It has 275 or more beds.
2. It has:
   a. at least 50 percent of its Medicare patients referred from other hospitals or from physicians not on the hospital's staff,
   b. at least 60 percent of its Medicare patients residing more than 25 miles from the hospital, and
   c. at least 60 percent of the services it furnishes to Medicare beneficiaries furnished to those who live more than 25 miles from the hospital.
3. It has:
   a. annual inpatient discharges equal to at least:
   —5,000 discharges (for nonosteopathic hospitals),
   —3,000 discharges (for osteopathic hospitals), or
   —the median number of discharges for urban hospitals located in the same region;
   b. a case mix index[1]—a measure of the medical complexity of patients treated—equal to at least:
   —the national median case mix index for all urban hospitals, or
   —the median case mix for urban hospitals located in the same region, excluding hospitals with approved teaching programs; and
   c. it meets at least one of the following three criteria:
   —more than 50 percent of the hospital's medical staff are specialists,
   —at least 60 percent of discharged inpatients reside more than 25 miles from the hospital, or
   —at least 40 percent of inpatients have been referred either from physicians not on the hospital's staff or from other hospitals.

To qualify as a *sole community hospital* (SCH), a hospital must meet one of the following four sets of specifications (42 CFR 412.92).

1. The hospital is more than 35 miles from other similar hospitals.[2]
2. The hospital is between 25 and 35 miles from other similar hospitals, and meets one of the following conditions:
   a. no more than 25 percent of the total residents or Medicare beneficiaries in the hospital's service area are admitted to other similar hospitals;
   b. the hospital has fewer than 50 beds but (because it does not provide certain specialty services and consequently beneficiaries must seek care outside the area for these services) is unable to meet the "25 percent" criterion above; or
   c. other similar hospitals are inaccessible for at least 1 month of each year because of local topography or severe weather conditions.
3. The hospital is between 15 and 25 miles of other similar hospitals, but it is inaccessible for at least 1 month of each year because of local topography or severe weather conditions.
4. The hospital was a Medicare-designated SCH at the time that PPS was implemented. (Because of this "grandfather" clause, many hospitals currently designated as SCHs do not meet any of the first three criteria (*739*).)

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[1] The case mix index is a measure of the costliness of the cases (patients) treated by a particular hospital relative to the cost of the national average of all Medicare hospital cases.

[2] Congress in 1989 (Public Law 101-239) modified the eligibility requirements for SCHs to reduce the number of miles an SCH must be from another hospital from 50 to 35 miles. (The Secretary of the Department of Health and Human Services (DHHS) may designate SCHs that are less than 35 miles from another hospital according to criteria to be developed by DHHS.) In addition, under this law, the Secretary of DHHS must develop and promulgate new distance criteria based on travel time.

Payment for Outpatient Care

Payment to Ambulatory Surgical Centers—An ambulatory surgical center (ASC) operates exclusively for the purpose of providing surgical services to patients not requiring hospitalization. To receive Medicare payments, an ASC must be certified by the program, and the services for which it bills Medicare must be approved for provision in that setting. ASC services are reimbursed according to a fee schedule that categorizes each approved procedure into one of six rate categories, depending on the complexity of the service (53 FR 31468). Only about 15 percent of ASCs are in rural areas (*99*), probably because such facilities rely on high service volumes.

Hospital Outpatient Payment—Unlike ASCs, hospitals are not limited to any specific set of procedures or services that can be provided to outpatients.[5] Nonsurgical hospital outpatient services (and some surgical ones) are reimbursed at the lesser of either actual charges for the service or the hospital's reasonable costs of providing the service (as reported to Medicare on the hospital's annual cost reports). Payment for most outpatient surgical services (i.e., those that can also be performed by ASCs) is based on the lesser of two amounts:

1. reasonable costs or charges, whichever is lower; or
2. a 50/50 percent blend of the above rate and the ASC rate for that service (*490*).

Payment to Physicians

Physicians are reimbursed for covered services rendered to Medicare beneficiaries on a fee-for-service basis. At present, Medicare's "approved charge" for a service is set at the lowest of:

- the actual billed charge;
- the physician's customary charge for the service, based on that physician's prior billings to the Medicare carrier; or
- the prevailing charge for that service, based on comparable physicians' prior billing for the same service in that region (*615*).[6]

Four major factors may lead to urban/rural Medicare physician payment differences:

1. *Physician specialty distribution*—Historically, for any given service, general and family practitioners have had lower charges and received lower Medicare reimbursements than practitioners in other specialties (*475*). Since these types of physicians are disproportionately located in rural areas (see ch. 10), rural physicians' average charges and reimbursments are correspondingly lower than those of urban physicians.
2. *Type of physician services*—Historically, surgical services have yielded higher charges and payments than counseling and other consultative services (*475*). Since most physicians who perform specialized surgical services are located in urban areas (see ch. 10), average physician charges and payments may be correspondingly lower in rural than in urban areas.
3. *Patients' ability to pay*—Rural residents have lower average incomes than urban residents (see ch. 2). To the extent that rural physicians charge their patients correspondingly less than urban physicians do, these lower charges are reflected in lower "customary and prevailing" charges and lower Medicare reimbursements.
4. *Physician location in understaffed areas*—Physicians practicing in federally designated "high priority" rural Health Manpower Shortage Areas (HMSAs) are paid an additional 5 percent above the approved charge for each service reimbursed by Medicare (Public Law 100-203). As of January 1991, the bonus will increase to 10 percent and will apply to all rural HMSAs (Public Law 101-239) (see ch. 13).

Beginning in 1992, Medicare will gradually switch from the current "reasonable charge" payment system to a fee schedule, in which payment for a service is based on a national rate (which is then adjusted according to geographic location). Under the new system, the payment will be the lesser of the actual charge or the fee schedule amount. Once the new system is fully implemented, payment amounts will not depend on the specialty of the physician concerned (Public Law 101-239). Urban/rural differences in Medicare payments to physicians for a given service will still exist, however, for three reasons. First, the new payment system includes an explicit geographic adjustment factor, under which services provided in an area with low physician practice costs will be paid at a lower rate than services in higher-cost areas (Public Law 101-239). Second, to the extent that rural physicians charge less than urban physicians *and* less than the fee schedule amounts, payments will also be less. Third, the HMSA bonus will continue to apply under the new system.

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[5] It is possible for a hospital to have its outpatient department certified as an ASC (47 FR 34082), but because of the more rigid payment method and restrictions on procedures that can be performed under ASC rules, it is probable that few hospitals have done so.

[6] If a physician agrees to accept "assignment"—i.e., accept reimbursement from Medicare as payment in full—he or she cannot bill the beneficiary for any amount over the 20 percent coinsurance and any remaining deductible. If the physician does not accept assignment, his or her expected full payment is not bound by the amount of the approved charge, and the beneficiary is liable for any difference between the physician's actual charge and the allowed charge (up to a maximum), in addition to the coinsurance and deductible. Physicians may decide whether to accept assignment on a case-by-case basis. Alternatively, a physician can elect to be a "participating physician" by agreeing to accept assignment on all Medicare claims for the next 12 months.

Medicaid

Medicaid is a federally aided, State-administered program that provides medical assistance to an estimated 24 million low-income people (*146*). Operating within Federal guidelines, each State designs and administers its own Medicaid program. Thus, although the Federal Government sets some mimimum standards, Medicaid eligibility requirements, services offered, and methods and levels of payment to providers vary widely among the States. The Federal Government pays 50 to 80 percent of each State's Medicaid expenditures, based on State-specific matching formulas (which are related to State per capita income) (*199*). Total Medicaid outlays in 1990 are projected to be approximately $71 billion, of which the Federal share will be $40 billion (*199*).

Medicaid policies can have different effects on urban and rural residents resulting from three factors: eligibility criteria, reimbursement methods, and physician participation differences. There is no direct way to measure urban/rural differences in Medicaid status based on published data; virtually all data on Medicaid are State-based.

Eligibility

Individuals are "categorically eligible" for Medicaid if they have low incomes and fall into one of five categories: aged, blind, disabled, members of families with dependent children, or first-time pregnant women. These individuals generally become eligible for Medicaid through enrollment in another public assistance program.[7] For example, all persons receiving payments under the Aid to Families with Dependent Children program (AFDC) are automatically eligible for Medicaid. In addition, Medicaid eligibility in most States is extended to all aged, blind, and disabled individuals (including children) who receive cash assistance under the Federal Supplemental Security Income (SSI) program. (To be eligible for SSI, an individual must be disabled and must have available income and resources no higher than established limits.) Fourteen States, however, exercise the so-called "209(b)" option by linking Medicaid eligibility for SSI beneficiaries to State standards that are more restrictive than Federal standards (*610*).[8]

Congress has been expanding Medicaid eligibility since 1984 to include many individuals—particularly pregnant women and infants—who would not otherwise meet income and categorical standards. As of July 1990, all States are required to extend Medicaid eligibility to pregnant women and young children whose family incomes are within 133 percent of the Federal poverty level (Public Law 100-360). In addition, 14 States have chosen the option, introduced in 1987 (Public Law 100-239), to make eligible pregnant women and infants with incomes up to 185 percent of the Federal poverty level (table 3-3) (*260,418,610*).

Eligibility for Medicaid varies a great deal among the States, particularly for individuals whose Medicaid eligibility is based on their eligibility for AFDC. In 1989, the State AFDC income eligibility levels for a family of three ranged from 14 to 77 percent of the Federal poverty level (table 3-3) (*260*). Thus, with the exception of pregnant women and infants, individuals in different States who are equally poor can differ enormously in their Medicaid eligibility.

Until October 1990, when new Federal requirements go into effect, family structure also affects Medicaid eligibility. Poor two-parent families cannot qualify for AFDC in many States, and thus in the

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[7] States have the option to make some other groups categorically eligible as well (e.g., individuals who are eligible for public assistance but not receiving it, some individuals who lose public assistance eligibility due to increased income, and disabled children who would be eligible for assistance if institutionalized.)

[8] The "209(b)" option permits States to retain the more restrictive level of benefit eligibility that existed in these States prior to the Federal implementation of the SSI program.

Table 3-3—Some Basic Eligibility Characteristics of State Medicaid Programs

State	AFDC-related income eligibility cutoff level (per month) (1989): In dollars (family of 3)	AFDC-related income eligibility cutoff level (per month) (1989): As percent of Federal poverty level	SSI-related eligibility more restrictive than Federal requirements (1988)	Has medically needy program (1989)	Covers families with 2 unemployed parents (1989)[a]	Coverage for pregnant women and infants (1990): Income eligibility level as percent of Federal poverty level[b]	Coverage for pregnant women and infants (1990): Age cutoff for covered infants
Alabama	118	14				100	1
Alaska	809	77				100	3
Arizona	293	35				100	3
Arkansas	204	24		x		100	6
California	663	79		x		185	1
Colorado	421	50				75	1
Connecticut	534	64	x	x		185	6
Delaware	333	40				100	3
District of Columbia	393	47		x		100	3
Florida	287	34		x	x	150	6
Georgia	376	45		x		100	4
Hawaii	557	58	x	x	x	185	7
Idaho	304	36				75	1
Illinois	342	41	x	x		100	1
Indiana	288	34	x			100	3
Iowa	394	47		x		185	6
Kansas	401	48		x		150	5
Kentucky	218	26		x	x	125	2
Louisiana	190	23		x		100	6
Maine	632	75		x		185	5
Maryland	377	45		x		185	2
Massachusetts	579	69		x		185	5
Michigan	572	68		x		185	3
Minnesota	532	64	x	x	x	185	5
Mississippi	368	44				185	5
Missouri	285	34	x			100	3
Montana	359	43		x		100	1
Nebraska	364	43	x	x		100	3
Nevada	330	39				75	7
New Hampshire	496	59	x	x		75	1
New Jersey	424	51		x	x	100	5
New Mexico	264	32				100	4
New York	539	64		x	x	185	1
North Carolina	266	32	x	x		150	6
North Dakota	386	46	x	x		75	1
Ohio	321	38	x			100	2
Oklahoma	471	56	x	x		100	2
Oregon	412	49		x		85	4
Pennsylvania	384	46		x	x	100	3
Rhode Island	517	62		x	x	185	6

(continued on next page)

past they have not been able to qualify for Medicaid (table 3-3) (*610*). Since poor two-parent families are disproportionately located in rural areas (see ch. 2), poor rural residents have been less likely than poor urban residents to be Medicaid-eligible.

States have the option to offer Medicaid to "medically needy" individuals—those who: 1) would be categorically eligible for Medicaid except that their income and resources are too high, and 2) have high medical expenses. In the 35 States (and the District of Columbia) that have medically needy programs, these individuals become eligible for Medicaid once they have spent enough on medical care to reduce their net resources to State-established limits. Each State may designate its own medically

Table 3-3—Some Basic Eligibility Characteristics of State Medicaid Programs—Continued

State	AFDC-related income eligibility cutoff level (per month) (1989)		SSI-related eligibility more restrictive than Federal requirements (1988)	Has medically needy program (1989)	Covers families with 2 unemployed parents (1989)[a]	Coverage for pregnant women and infants (1990)	
	In dollars (family of 3)	As percent of Federal poverty level				Income eligibility level as percent of Federal poverty level[b]	Age cutoff for covered infants
South Carolina	403	48				185	6
South Dakota	366	44				100	2
Tennessee	365	44		x		100	6
Texas	184	22		x		130	4
Utah	502	60	x	x		100	2
Vermont	629	75		x		185	6
Virginia	291	35	x	x		100	2
Washington	492	59		x		185	7
West Virginia	249	30		x		150	7
Wisconsin	517	62		x	x	82[d]	1
Wyoming	360	43				100	1

ABBREVIATIONS: AFDC = Aid to Families With Dependent Children.

[a] As of October 1990, all States will be required to make eligible for AFDC (and Medicaid) all families who would be eligible for AFDC under current rules except that the principle wage-earner is unemployed (Public Law 100-485).

[b] As of April 1990, all States must make eligible for Medicaid all pregnant women and infants up to age 1 whose incomes are no more than 133 percent of the Federal poverty level (Public Law 101-290). All children born after September 1990 whose family incomes are within this amount must also be made eligible through the age of 6. (Although this new standard is a Federal mandate, in fact it may take some time for many States to actually come into compliance with the new law.)

SOURCES: I. Hill, National Governor's Association, Washington, DC, unpublished memorandum, May 11, 1989; U.S. Congress, Congressional Research Service, Medicaid Source Book: Background Data and Analysis, House of Representatives Committee Print No. 100-AA (Washington, DC: U.S. Government Printing Office, November 1988).

needy income and resource standards, but these standards cannot exceed 133 percent of the State's AFDC income and resource standards (*610*). Thus, even in the States that offer medically needy programs, Medicaid eligibility under these programs varies with AFDC standards.

Covered Services

As a condition of matching funding, the Federal Government requires State Medicaid programs to cover certain basic inpatient, outpatient, and long-term care services for their categorically eligible populations (table 3-4). States also have the option to cover additional services.

In general, any services covered under the program must be made available to all Medicaid recipients, but several major exceptions to this rule exist. First, States with medically needy programs may provide more limited coverage for these individuals than for categorically eligible individuals, although in fact almost none do so (*475*). Second, under a part of Medicaid known as the Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) program, children can receive a broad range of screening and followup services not available to other Medicaid beneficiaries. And third, States in some cases may obtain waivers to the usual rules, enabling them to offer certain services to a specified population (e.g., the elderly). Under one Medicaid waiver program, for instance, States may provide a wide range of community-based services necessary to keep people who would otherwise be institutionalized in their homes.

Compared with Medicare, Medicaid offers a much broader range of services, but it also places much stricter limits on their use. Some important types of limits[9] are:

- *Mechanisms to control the use of hospitals*—Particularly important are limits on the length

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[9] Some of these limits—e.g., on ambulatory care visits to physicians—do not apply to children receiving services under the EPSDT program.

Table 3-4—Services Covered Under Medicaid

Mandatory services
- Inpatient hospital services
- Outpatient hospital services
- Physician services
- Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) for children[a]
- Family planning services and supplies
- Laboratory and X-ray procedures
- Adult skilled nursing facility care
- Home health care services for adults
- Rural health clinic services
- Services of certified nurse-midwives

Optional services
- Additional home health services
- Additional dental services
- Services of chiropractors, optometrists, podiatrists, and other licensed practitioners
- Clinic services
- Other diagnostic, screening, preventive, and rehabilitative services
- Drugs
- Intermediate care facility services
- Eyeglasses, prosthetic devices, and orthopedic shoes
- Home and skilled nursing facility care for children
- Private duty nursing
- Inpatient psychiatric care for children
- Physical, occupational, and speech therapies
- Inpatient services to elderly persons in mental disease or tuberculosis facilities
- Other medical or remedial care recognized under State law, including transportation and emergency services

[a] EPSDT is a program within Medicaid that combines outreach, health screening, followup care for detected conditions, and case management. Each State is required to offer EPSDT services to all Medicaid-eligible children and youth under 21.

SOURCE: U.S. Department of Health and Human Services, Health Care Financing Administration, Medicare and Medicaid Data Book, 1988 (Baltimore, MD: U.S. DHHS, April 1989).

of hospital stay and total number of days of care covered annually. In 1986, 11 States limited the number of days of hospital care for which they would pay (*653*). Restrictions ranged from limits of 12 to 60 days a year and 14 to 30 days for each admission or spell of illness. In addition, 12 States restrict the ability of patients to be admitted to the hospital on weekends or on days preceding the day an operation is scheduled. Ten States limit the number of hospital outpatient visits a year that will be reimbursed.

- *Restrictions on physician visits*—As of 1986, 44 States and the District of Columbia limited the annual number of physician visits covered by Medicaid (*653*). Six States limit the number of reimbursable office visits (limits range from 12 to 48 visits a year); 3 States limit the number of home physician visits; 1 State limits the number of emergency room visits per year; and 6 other States limit the total number of physician visits provided for other than hospital inpatient care, with limits ranging from 12 to 24 visits per year. In addition, 10 States limit physician visits in the hospital, and 11 limit visits in long-term care facilities (*653*).
- *Prior authorization and second opinion restrictions*—Many States require recipients to receive permission from Medicaid before receiving certain services—e.g., elective surgery, care provided in certain settings, or psychiatric services. States may also require the opinion of a second physician before a patient may undergo certain procedures (*653*).

Many other limits on specific services exist as well. Some States limit the number of particular services provided (e.g., psychiatric visits, eye exams). States also impose limits on institutional and home-based long-term care services, therapy services, home medical equipment, and the number and types of prescription drugs that are covered (*653*).

Reimbursement

Hospital Care—Most States now pay for hospital care based on some kind of prospectively set rate per day, per discharge, or per admission (table 3-5). States use a wide variety of methods to set these rates, including selective contracting, hospital-specific negotiated rates, DRG-based methods, and past hospital costs (*610*). Only three States (Delaware, West Virginia, and Wyoming) base their Medicaid payment for inpatient care to a patient on that patient's actual incurred costs; one additional State (Utah) does so only for rural hospitals (*343a*).

Medicaid payment methods for hospital outpatient services are even more varied, ranging from fee schedules and other forms of prospective rates to payments based on either costs or charges.[10] Only Delaware and Wyoming pay for both inpatient and outpatient services based on hospitals' actual costs.

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[10] As used here, "costs" refer to actual costs of treating patients (e.g., staff salaries, supplies, depreciation). "Charges" are the prices that hospitals assign to services when billing patients or payers. Charges are not necessarily directly related to costs.

Table 3-5—State Medicaid Hospital and Physician Reimbursement Methods, Fiscal Year 1987

State[a]	Hospital inpatient	Hospital outpatient	Physicians' services
Alabama	Prospective rate	Fee schedule	Prevailing charges
Alaska	Prospective rate	Prospective rate	Prevailing charges
Arkansas	Prospective rate	Fee schedule	Fee schedule
California	Prospective rate	Fee schedule[b]	Relative value scale
Colorado	Prospective rate[d]	Percent of costs[c]	Relative value scale
Connecticut	Prospective rate	Prospective rate	Fee schedule
Delaware	Cost-based rate	Reasonable costs	Fee schedule
District of Columbia	Prospective rate[e]	Prospective rate	Fee schedule
Florida	Prospective rate	Prospective rate	Fee schedule
Georgia	Prospective rate	Cost-to-charge ratio	Fee schedule
Hawaii	Prospective rate	Negotiated rate	Prevailing charges
Idaho	Prospective rate[e]	Reasonable costs	Relative value scale
Illinois	Prospective rate	Fee schedule	Fee schedule
Indiana	Prospective rate[e]	Reasonable costs	Prevailing charges
Iowa	Prospective rate[d]	Reasonable costs	Prevailing charges
Kansas	Prospective rate[d]	Fee schedule	Prevailing charges
Kentucky	Prospective rate	Percent of charges	Prevailing charges
Louisiana	Prospective rate	Reasonable costs	Prevailing charges
Maine	Prospective rate	Reasonable costs	Fee schedule
Maryland	Prospective rate	Prospective rate	Fee schedule
Massachusetts	Prospective rate	Prospective rate	Fee schedule
Michigan	Prospective rate[d]	Prevailing costs	Fee schedule
Minnesota	Prospective rate[d]	Prevailing charges	Prevailing charges
Mississippi	Prospective rate	Reasonable costs	Fee schedule
Missouri	Prospective rate	Percent of costs[c]	Fee schedule
Montana	Prospective rate[d]	Reasonable costs	Fee schedule
Nebraska	Prospective rate	Prevailing charges	Prevailing charges
Nevada	Prospective rate	Fee schedule	Fee schedule
New Hampshire	Prospective rate[d,e]	Reasonable costs	Fee schedule
New Jersey	Prospective rate[d]	Cost-to-charge ratio	Fee schedule
New Mexico	Prospective rate	Reasonable costs	Prevailing charges
New York	Prospective rate	Fee schedule	Fee schedule
North Carolina	Prospective rate	Percent of cost	Prevailing charges
North Dakota	Prospective rate[d,e]	Reasonable costs	Prevailing charges
Ohio	Prospective rate[d]	Reasonable costs	Fee schedule
Oklahoma	Prospective rate	Percent of inpatient rate	Prevailing charges
Oregon	Prospective rate[d]	Percent of cost	Fee schedule
Pennsylvania	Prospective rate[d]	Fee schedule	Fee schedule
Rhode Island	Prospective rate	Prospective rate	Fee schedule
South Carolina	Prospective rate[d]	Percent of cost	Relative value scale
South Dakota	Prospective rate[d]	Reasonable costs	Prevailing charges
Tennessee	Prospective rate	Reasonable costs	Prevailing charges
Texas	Prospective rate[d]	Reasonable costs	Prevailing charges
Utah	Prospective rate[d,f]	Percent of charges	Fee schedule
Vermont	Prospective rate	Reasonable costs	Fee schedule
Virginia	Prospective rate	Reasonable costs	Fee schedule
Washington	Prospective rate[d]	Prospective rate	Fee schedule
West Virginia	Cost-based rate	Fee schedule	Fee schedule
Wisconsin	Prospective rate	Prospective rate	Prevailing charges
Wyoming	Cost-based rate	Reasonable costs	Prevailing charges

[a] Arizona does not operate a fully fledged Medicaid program; its more limited medical assistance program operates as a demonstration program under waivers of certain Medicaid requirements.

[b] Or negotiated rates.

[c] Or percent of charges.

[d] Rates are weighted by diagnosis-related group.

[e] Current as of 1989.

[f] Rural hospitals are paid 95 percent of reasonable costs.

SOURCES: J. Leuhrs, National Governor's Association, Washington, DC, "Summary of State Medicaid Inpatient Hospital Coverage," memorandum to interested parties, Dec. 18, 1989; and U.S. Congress, Congressional Research Service, Medicaid Source Book: Background Data and Analyses, House of Representatives Committee Print No. 100-AA (Washington, DC: U.S. Government Printing Office, November 1988).

Box 3-C—Swing Bed Certification Requirements for Rural Hospitals

To be eligible for the swing-bed program, a hospital must:

- Be located in a rural area. In this program, "rural" is defined according to the Census Bureau's definition (any geographic area not designated as urban in the most recent census).
- Have fewer than 100 certified inpatient beds (exclusive of bassinets and intensive-care beds).
- Have received a certificate of need for the provision of long-term care services from its State health planning and development agency, if the State is one that requires such approval.

A hospital may *not*:

- Have in effect a 24-hour nursing waiver granted under the flexibility of personnel standards.
- Have had a swing-bed approval terminated within the 2 years prior to application (*140*).

A swing-bed hospital must meet certain standards for skilled nursing facility services in addition to the standards it must meet as an acute-care general hospital. Accordingly, such a hospital must provide, or arrange to have provided by others:

- rehabilitative services (including physical therapy, occupational therapy, speech therapy, and audiology);
- dental services;
- social services;
- patient activities (provided by a qualified activities coordinator); and
- discharge planning.

A swing-bed hospital must also meet requirements regarding patients' rights (*140*).

Physician Services—As of 1987, 30 States and the District of Columbia paid for physicians' services to Medicaid beneficiaries according to a set fee schedule; 4 of these States derived the fee schedule from a relative value scale (a scale that assigns weights to the various procedures) (table 3-5) (*610*). The remaining 20 States based payments on actual customary or prevailing charges, but since several of those States no longer regularly update their calculations of prevailing charges, actual fees may be much lower than current charges (*610*).

Physicians accepting Medicaid reimbursement must agree to accept it as payment in full for covered services. In general, Medicaid fees are well below those paid by Medicare, which are in turn lower than those paid by the private sector.[11] Recent legislation requires the Federal Government to more closely monitor State Medicaid rates for obstetric and pediatric services in order to ensure that rates for these services are not so low as to restrict access (Public Law 101-239). The impact of this mandate remains to be seen.

Physician Participation

Little is known about urban/rural differences in Medicaid physician participation (i.e., physicians who accept at least some Medicaid patients). There are dramatic differences in partipation across specialties; a 1984 survey found Medicaid participation to range from 97 percent among anesthesiologists to 60 percent among psychiatrists (*394*). Family practitioners had a relatively high participation rate in this survey (87 percent), with rates for pediatricians, internists, and general practitioners somewhat lower (80, 80, and 82 percent, respectively). Obstetrician/gynecologists had low rates (72 percent) that were second only to those of psychiatrists. A study of pediatricians found that the proportion who accepted Medicaid patients declined from 85 to 77 percent between 1978 and 1989, and only 56 percent of pediatricians in 1989 accepted new Medicaid patients without regard to their payment status (*743*).

Exceptions to Medicare and Medicaid Rules for Rural Facilities

The Swing-Bed Program

Acute care and long-term care have different goals and staffing needs; thus, the two generally have different certification requirements under the Medicare and Medicaid programs and must be provided by different institutions (or distinct parts of institutions). Under the swing-bed program, however, small rural hospitals that meet certain certification standards (see box 3-C) may use their beds interchangeably for acute- and long-term care and receive reimbursement in either case (Public Law 96-499). Medicaid permits swing beds to be used for acute, skilled nursing, or intermediate care;[12] Medicare covers only acute and skilled nursing care.

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[11] In fact, Medicaid is prohibited by law from paying more for a service than Medicare would pay (*140*). Nonetheless, in a few cases Medicaid apparently does in practice pay more than Medicare does.

For swing-bed care equivalent to the care provided in a skilled nursing facility (SNF), Medicare pays the same average rate per patient day as would be paid for routine SNF services under the State's Medicaid program. As of 1987, 983 hospitals were Medicare-certified to operate swing beds (*625*).

Rural Health Clinics

A facility certified by Medicare and Medicaid as a rural health clinic (RHC) is eligible for exceptions to normal payment rules governing services provided by midlevel practitioners—physician assistants (PAs), nurse practitioners (NPs), and certified nurse-midwives (CNMs). In most cases outside of RHCs, Medicare pays for services provided by these practitioners only when they are "incident to" the services of a physician. This statutory restriction has meant that midlevel practitioners who were not working under the direct supervision of a physician, or who were providing services normally provided by physicians (e.g., physical exams), could not receive Medicare reimbursement (*617*). Medicaid rules vary by State, but all States place some restrictions on midlevel practice. Under the Rural Health Clinic Act (Public Law 95-210), however, the services of these providers—including services normally provided by physicians—can be reimbursed by Medicare and Medicaid if they are provided in a certified RHC.[13]

RHCs may be provider-based—for example, the outpatient department of a hospital—or freestanding clinics and physicians' offices. To be certified as an RHC, a facility must be located in an underserved rural area, meet certain standards for physician supervision and minimum level of services offered, and have a midlevel practitioner on duty at least 50 percent of the time the clinic is open (see box 3-D). The services of clinical psychologists and clinical social workers are now also reimbursable if provided in a certified RHC, although these practitioners do not count towards the certification requirements.[14]

For freestanding RHCs, Medicare and Medicaid make interim payments for covered services at an all-inclusive rate per visit computed by Medicare (based on past costs), with an end-of-year adjustment to reflect actual costs. Total payments, however, cannot exceed a specified ceiling on average

Box 3-D—Rural Health Clinic Certification Requirements

To become certified as a rural health clinic under Medicare and Medicaid, a clinic must:

- be located in a Census-defined rural area that is also a federally designated primary care Health Manpower Shortage Area or Medically Underserved Area;[1]
- be engaged primarily in the provision of outpatient primary medical care;
- employ at least one physician assistant or nurse practitioner;
- meet applicable Federal, State, and local requirements and Medicare and Medicaid health and safety requirements;
- be under the medical direction of a physician (who must be on site at least once every 2 weeks);
- have a midlevel practitioner—a nurse practitioner, physician assistant, or certified nurse-midwife—available to provide patient care services in the clinic at least 50 percent of the time the clinic is open;[2]
- provide routine diagnostic services (including clinical laboratory services);
- maintain health records on all patients;
- have written policies governing the services that the clinic provides;
- have available drugs, blood, and other supplies necessary to treat medical emergencies; and
- have arrangements with other providers and suppliers to ensure that clinic patients have access to inpatient hospital care and to other physician and laboratory services not provided in the clinic (Public Law 95-210).

[1] Clinics serving populations who are underserved can also qualify. In addition, the Omnibus Reconciliation Act of 1989 (Public Law 101-239) gives State governors the discretion to designate eligible sites for rural health clinics that may not be federally designated as shortage areas.

[2] This requirement was reduced from 60 to 50 percent as of October 1989 (Public Law 101-239).

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[12] In contrast to skilled nursing care, intermediate care primarily requires personal care such as bathing, dressing, and feeding, rather than more medically intensive care (e.g., giving injections) that requires a trained nurse.

[13] Medicare coverage for CNMs in RHCs was added in 1989 (Public Law 101-239).

[14] Clinical psychologist services were added to the law in 1987 (Public Law 100-203), and clinical social worker services were added in 1989 (Public Law 101-239).

payment per visit ($47.38 in 1990) (Public Law 100-203). For provider-based RHCs, payment by both Medicare and Medicaid is made according to a Medicare cost-based reimbursement formula with no ceiling on the reasonable costs (Public Law 95-210). In either case, reimbursement is to the clinic that employs the practitioner rather than directly to the practitioner.

HEALTH BLOCK GRANT PROGRAMS

This section briefly describes three Federal block grant programs that affect health services in both rural and urban areas. All were created by the 1981 Omnibus Budget Reconciliation Act (Public Law 97-35), which consolidated various sets of categorical grant programs into block grants. In each case, the block grant increased State discretion at the expense of Federal direction and oversight. All three block grants have since been amended to cover additional services. (Individual programs and their implications for rural areas are discussed in more detail in chs. 15 and 16.)

Maternal and Child Health Block Grant

Authorized under Title V of the Social Security Act and administered by HRSA, the Maternal and Child Health (MCH) block grant program provides health services to mothers and children. Instead of operating as an insurance program, the Federal grants are awarded to the States, which in turn fund public and private providers of maternal and child health care services (e.g., local health departments).

The MCH block grant consolidated a series of categorical Federal grants for:

- maternal and child health services (including prenatal care, family planning, well-child care, vision and hearing screening, dental care, immunization, and lead screening);
- services for disabled and other children with special health care needs;
- Supplemental Security Income services for disabled children;
- hemophilia treatment centers; and
- other programs aimed at specific groups or health problems (e.g., counseling for parents whose children were victims of Sudden Infant Death Syndrome).

The legislation creating the block grant eliminated most of the requirements for providing specific services. Fifteen percent of the total funding continued to be set aside for special demonstration projects, leaving 85 percent of appropriated funds to be allocated among the States. States were required to match every 4 Federal dollars received with 3 State dollars. An evaluation of the implementation of the block grant program by the General Accounting Office (GAO) found that States tended to spend their allotments in ways similar to prior patterns (*612*).

In 1986, Congress changed the funding formula to earmark certain funds for specific purposes. Under current law, a base amount ($478 million, an amount equal to the block grant's fiscal year 1985 appropriation) is allocated according to the original formula, with 85 percent distributed to the States and 15 percent set aside for demonstration grants (*611*). Amounts above that base, however, are allocated under a new formula. In 1989, 9 percent of the amount above the base was retained by DHHS to fund genetic screening projects. Two-thirds of the remaining amount over the base was allocated according to the 85 percent/15 percent formula. The remaining one-third was also allocated according to the formula but was earmarked for programs to develop primary health services for children and community-based service networks and case management services for children with special health care needs (*611*).

Within the non-earmarked portion of the MCH grant, States retain tremendous latitude in the use of funds. States determine both the distribution of funds among services and the eligibility criteria for individuals receiving those services. States may charge for the services provided. However, they may not charge mothers and children whose incomes are below Federal poverty guidelines, and charges for those with higher incomes must be based on a sliding scale reflecting income, resources, and family size (*611*).

Very little is known about who receives what type of services under the MCH block grant, largely because the Federal Government does not require the collection or reporting of data on such expenditures. This dearth of information is compounded by the lack of Federal requirements for minimum services and eligibility. Some self-reported information from States is available through an annual survey conducted by the Public Health Foundation. According to this source, most (69 percent) MCH block grant funds allocated to the States are spent on personal health services, specifically for maternal and child health services (*496*). Most of the remainder (19 percent) are spent on services to children with special health care needs. No information is collected regarding the residence (urban or rural) of individuals receiving services that are funded through the MCH block grant.

Preventive Health and Health Services Block Grant

The 1981 legislation creating the Preventive Health and Health Services (PHHS) block grant consolidated funding for eight categorical grants:

- health education and risk reduction,
- comprehensive public health services,
- emergency medical services,
- home health demonstration services,
- rodent control,
- fluoridation programs,
- detection and prevention of hypertension, and
- rape crisis and prevention services.[15]

Subsequent legislation added several additional programs that could be funded under the PHHS block grant:

- prevention of chronic diseases,
- prevention and control of uterine and breast cancers,
- immunization services (including immunization of emergency workers against preventable occupational-exposure diseases, e.g., hepatitis), and
- serum cholesterol control projects (Public Law 100-607).

As with the MCH grant, each State retains its own decisionmaking authority over how the funds are distributed for the various services (with the exception of rape crisis and prevention services, which are covered by set-aside funds). The PHHS block grant is administered by the Centers for Disease Control (CDC).

PHHS grant allocations are based on the proportion of funds each State received under the categorical programs in the year before they were consolidated into the block grant. In fiscal year 1989, the PHHS block grant was $84.7 million. Of this, $3.5 million (the minimum specified amount) was set aside for rape crisis and prevention services and allotted to the States on the basis of population size (*320*).

Compared with the MCH block grant, a much greater proportion of PHHS money is spent on non-personal health services. In fiscal year 1987, 61 percent of PHHS block grant funds allocated to the States were spent for personal health services, 10 percent for environmental health, and 16 percent for health resources (*496*). Of the specific categories of services covered by the block grant, programs for the detection and prevention of hypertension made up the single biggest expenditure category (19 percent). Health education/risk reduction and emergency medical services accounted for 17 and 15 percent of expenditures, respectively. In contrast, only three States funded home health agency demonstrations with PHHS block grant funds, accounting for only 0.1 percent of expenditures under the grant (*496*).

Alcohol, Drug Abuse, and Mental Health Services Block Grant

The Alcohol, Drug Abuse, and Mental Health Services (ADMS) block grant is administered, unsurprisingly, by the Alcohol, Drug Abuse, and Mental Health Administration (ADAMHA). This block grant provides funds to States for prevention, treatment, and rehabilitation programs addressing alcohol and drug abuse; and for grants to community mental health centers for health services, including services for the chronically mentally ill, severely mentally disturbed children and adolescents, mentally ill elderly individuals, and other special populations.

The ADMS block grant has a lively recent legislative history. As with the other block grants, it was created in 1981 to consolidate funding for existing categorical programs (authorized by the Community Mental Health Centers Act of 1963, the Mental Health System Act of 1980, and the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment, and Rehabilitation Act of 1970). The block grant itself was amended in 1986 to increase its authorization level; the same law also created a separate, new program of grants to States to supplement existing substance abuse treatment and rehabilitation programs (Public Law 99-570). The 1988 Anti-Drug Abuse Act (Public Law 100-690) then consolidated the new substance abuse grant into the ADMS block grant. (This Act also authorized a mental health services demonstration program, under which 15 percent of appropriated funds for the program must be spent on projects in rural areas.)

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[15] Replaced in 1986 by "victims of sex offenses and for prevention of sex offenses" (Public Law 99-654).

Under the present block grant, about two-thirds of the overall Federal appropriation will be allocated for substance abuse programs and one-third for mental health service activities, although the proportions allotted to individual States may differ. The current formula for distributing funds to the States is based on each State's population of age groups at greatest risk for substance abuse and mental illness and on total taxable resources of each State. The formula gives weight to States with urban, young adult populations, who are presumed to be at especially high risk of substance abuse (Public Law 100-690).

The 1988 Act required each State to use at least 10 percent of its block grant allocation for substance abuse programs, services, and demonstration projects for women, particularly those who are pregnant or who have dependent children. At least 55 percent of the mental health allotment must be used for new community mental health services not available before fiscal year 1988.

In fiscal year 1989, the appropriation for the ADMS block grant was $805.6 million, of which 5 percent were reserved for data collection and services research. The remainder was allocated among the States, with an estimated $247 million allocated for mental health services and $529 million for substance abuse services (*320*).

PROGRAMS TO AUGMENT RURAL HEALTH RESOURCES

Health Personnel Programs[16]

National Health Service Corps

The purpose of the National Health Service Corps (NHSC), established in 1972, is to encourage health professionals to practice in designated HMSAs. The NHSC includes a small group of commissioned officers of the Public Health Service, who are salaried employees of the Federal Government and practice where they are sent by the Corps. The NHSC also includes a much larger group of health professionals who are placed in HMSAs by the NHSC but who are not actually commissioned members.

Originally limited to physicians, the NHSC placement program was expanded to include a broad range of other health professionals as well, including midlevel practitioners (*462*). The majority of NHSC placements, however, are still physicians.

The placement program has three components: the Volunteer Program, the Scholarship Program, and the Loan Repayment Program. The Volunteer Program consists of health professionals who are recruited by the NHSC to serve in HMSAs but who are under no legal obligation to do so. These volunteers may either establish private practices or receive their salary from a variety of public and private employers. They are not counted as NHSC field personnel.[17]

Under the Scholarship Program, individuals entering medical (or other health professional) schools are awarded scholarships for their health professions education. In exchange for each year of scholarship received, the recipient is obligated to practice for 1 year in a designated high-priority HMSA (*689*). The minimum service obligation is 2 years (*662*). Since 1987, NHSC scholarships have been awarded only to a few students with extreme financial need (43 in 1989) (*659*).

The Federal NHSC Loan Repayment Program, enacted in December 1987 (Public Law 100-177), pays participants up to $20,000 a year toward their outstanding health profession educational loans. As with the Scholarship Program, participants must practice health care in a designated high-priority HMSA in order to meet the obligations of the program. Obligations are from 2 to 4 years, with longer obligations receiving higher annual payments. Applicants to the program must be in their last year of education to be eligible for consideration. Priority is given to applicants who are about to graduate as medical doctors, NPs, or CNMs (*662*). In 1989, 112 placements were made through the Federal Loan Repayment Program (*659*).

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[16] Many of these programs are discussed in more detail in ch. 13.

[17] The same program also recruits personnel for the Indian Health Service.

A separate loan repayment program, administered though the NHSC, operates through the States (see ch. 13). States need not adhere directly to Federal HMSA guidelines when designating eligible areas to carry out the service obligation. Funds are limited, however, and in 1989 only seven States received funds under this program.

Until 1979, when the first large group of obligated NHSC scholarship recipients came out of the "pipeline," most field placements were volunteers. The NHSC field program (which pays for salaries, placement services, etc. for NHSC-placed personnel) had its highest level of funding in 1983, but decreases in total field personnel were not seen until years after funding was cut back, due to the long "pipeline" of the Scholarship Program. Field strength peaked in 1986 and has been declining since (*659*).

The NHSC directly paid the salaries of most field placements (both obligated and volunteer health professionals) until 1979, when it began to rely more on other employers and self-employment of physicians to support placements. In 1988, only 15 percent of NHSC field positions were federally salaried; the remainder received their salaries from community and migrant health centers, private practices, and other organizations.

Area Health Education Centers

The purpose of the Area Health Education Centers (AHEC) Program is to attract and retain primary care professionals in shortage areas by linking academic health sciences centers with clinical sites in underserved urban and rural communities. Under this program, the Federal Government enters into cooperative agreements with AHECs to establish networks of health-related institutions (e.g., academic medical centers, hospitals, clinics, private medical offices) to provide educational services to students, faculty, and practitioners (Public Law 92-157) (*677*).

The original AHEC program began in 1972 and funded selected university medical schools under 5-year, incremental contracts, in which funding increased during the first 3 years and then decreased as programs became self-supporting (Public Law 92-157) (*677*). In 1981, the funding mechanism was changed to a cooperative agreement that required a substantial Federal role in the management of AHEC projects. Eligible recipients of AHEC funds include allopathic and osteopathic medical schools and groups of such institutions (*677*).

The Federal "seed money" may not exceed 9 years for an individual AHEC, and Federal funding is decreased after the fourth year. Each project must contribute at least 25 percent in matching funds from State or other sources. Eighteen projects in 21 States currently receive funding for planning, development, or operation (*677*). Federal AHEC Program awards in 1988 totaled $15.5 million.

Since the program began, 23 AHECs have graduated from Federal funding. These AHECs are still eligible for separate demonstration funds for "special initiative projects." In fiscal year 1988, $1.7 million was awarded to 28 such projects in 10 States (*677*).

The AHEC educational mission is very broad; specific programs implemented depend on the needs, desires, and resources of the participants. Programs have included clinical training rotations in underserved rural areas, establishing a Hispanic residency program in family medicine, training health professionals to work with Native Americans from various cultures, and facilitating health professions educational programs on such diverse subjects as occupational and agricultural health, primary care for Southeast Asian refugees, and family and spousal abuse (*677*).

Border Health Education Centers

The Border Health Education Centers program, authorized by the Omnibus Reconciliation Act of 1989 (Public Law 101-239), funds contracts with schools of allopathic and osteopathic medicine to create centers that will improve the supply and quality of personnel providing health services along the border between the United States and Mexico. Nonborder areas with large new immigrant populations may also receive funds under the program.

Other Health Professions Education and Training Programs

A number of other Federal programs, authorized under titles VII and VIII of the Public Health Service Act, provide support to institutions (through grants and contracts) and to students (through loans, loan guarantees, and scholarships) in the fields of medicine, osteopathy, nursing, dentistry, veterinary medicine, optometry, podiatry, pharmacy, public health, and graduate programs in health administration.

Health professions education programs—construction grants to schools and loans to students—were initiated in 1963 (Public Law 88-129) and 1964 (Public Law 88-581), in response to concerns that the United States faced a critical shortage of health personnel (*319*). Over the next decade, the programs expanded, becoming available to a greater number of schools and students and a broader range of health professionals. Grant programs to encourage special projects at health professions schools were also added (*319*).

In 1976, Congress began to refocus special project grants to emphasize training for primary care providers who would serve in underserved areas, and it began to replace broad scholarship programs with more limited scholarship and loan programs. Legislation in 1981 repealed all basic grants to health professions schools except schools of public health, and 1985 legislation extended funding authority for existing programs that address problems associated with improving the geographic and specialty distribution of professionals (*319*). Brief descriptions of current Federal health professions education and training programs follow.

Student Assistance Programs—The Federal Government funds a number of trainee programs in public health schools, public administration schools, preventive medicine departments, nursing schools, and hospitals. (These funds reach students through the institutions rather than directly.) The government also awards scholarships to some first-year health professions students through the Exceptional Financial Need Scholarship Program. Authorization exists for two student loan programs and one loan guarantee program, none of which have received appropriations in recent years (*319*).[18]

A new interdisciplinary training program was authorized in late 1989 (Public Law 101-239). Its purpose is to prepare health professionals for practice in rural areas where personnel are in short supply by training individuals from different health professions (e.g., pharmacists, physicians, and NPs) to work together in a rural setting. The program is explicitly focused on nonphysician personnel; no more than 10 percent of funds may be spent on training medical students (Public Law 101-239). No funds had been awarded as of April 1990, so the nature of the interdisciplinary programs that could develop is unknown.

Institutional Assistance Programs—The Federal Government provides grants to family medicine, pediatrics, general internal medicine, and general dentistry programs to support the planning, development, maintenance, and improvement of primary care undergraduate and graduate programs. Similar general support programs exist for physician assistant programs, public health schools, and health administration schools. Several institutional grants are also available to support nursing school programs for NPs and nurse-midwives, other advanced nursing training, and nursing faculty fellowships (*319*).

Two small institutional programs are targeted to the health professions education of minority and disadvantaged students. The Minority Education Program provides grants to four health professions schools for development of model education programs for minority individuals. The Disadvantaged Assistance Program provides grants and contracts to health professions schools and other organizations to help them identify, recruit, and prepare minority and disadvantaged students for health professions careers (*319*).

Special Projects—Section 788 of the Public Health Act authorizes funding for Special Education Initiatives/Curriculum Development, which includes grants and contracts to health professions institutions and other organizations for a variety of projects, including projects to provide support services to health professionals practicing in HMSAs. Special project grants are also available to nursing schools and other organizations to support projects to enhance nursing skills and knowledge (*319*).

Primary Care Facilities and Services

Community Health Centers

The Community Health Center (CHC) Program, authorized in section 330 of the Public Health Act and administered by HRSA's Bureau of Health Care Delivery and Assistance, provides grants to establish and to operate CHCs. These centers provide primary care services to designated medically underserved areas and populations. To receive Federal funding,

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[18] The three programs are the Health Professions Student Loan Program and the Nursing Student Loan Program, which provide low-interest loans to health professions students, and the Health Education Assistance Loan Program, which provides a Federal guarantee for private-sector, market-rate loans.

CHCs must provide basic primary health services, including:

- physician services (and, where feasible, services of PAs and NPs);
- diagnostic laboratory and radiology services;
- preventive health services (including family planning, prenatal, and well-child care);
- emergency medical services;
- transportation services (as needed);
- preventive dental care; and
- where appropriate, pharmaceutical services.

In addition, CHCs may, where appropriate, provide the following supplemental health services:

- hospital services;
- home health services;
- long-term care services;
- rehabilitative services;
- mental health services;
- dental services;
- vision services;
- therapeutic radiology services;
- allied health services;
- public health services (including counseling, referral, and followup for social and nonmedical needs that affect health status);
- ambulatory surgical services;
- health education services; and
- services that promote the use of the above services, such as interpreters in CHCs that provide services to a large non-English-speaking population.

In 1988, the Federal CHC program supported 526 CHCs, of which 319 were in rural areas.[19] On average, each rural CHC provided nearly 35,000 patient visits in that year (see ch. 5) (*658*).

CHCs are required to seek third-party reimbursement (Medicaid, Medicare, private insurance) if available. They provide services on a sliding fee scale based on income and family size; families with incomes below the Federal poverty level receive free care.

Recent Federal appropriations for CHCs have included supplemental funding for the Government's Infant Mortality Initiative.[20] Funds from this initiative are to be spent on expanding health care systems for pregnant women and infants, enhancing the provision of primary and supplemental health services, and improving access to these services (*320*).

DHHS also provides some CHCs with supplemental project grants and contracts to operate clinics to treat black lung disease in coal miners. These clinics operate at 58 CHC sites in 14 States and provide for the analysis, examination, and treatment of breathing and lung impairments in active and retired coal miners. In fiscal year 1988, the program provided services to an estimated 47,500 victims of black lung disease (*611*).

Migrant Health Centers

Like CHCs, migrant health centers (MHCs) are part of HRSA's primary care program. The MHC program closely parallels the CHC program. It provides grants both to establish and to operate centers, which must provide the same basic primary care services provided by CHCs. In addition to the supplemental services that may be provided by CHCs, MHCs may also provide:

- environmental health services (e.g., rodent control, field sanitation, sewage treatment);
- infectious and parasitic disease screening and control; and
- accident prevention programs (including prevention of excessive pesticide exposure).

The population that can receive MHC services is limited to migratory and seasonal agricultural workers and their families. In 1988, there were 118 MHC grant recipients operating clinics that served over 500,000 people (see ch. 2) (*181*). Many MHCs also receive funds from the CHC program. As with CHCs, MHC services are provided on a fee-for-service basis, with a sliding fee schedule applying to those without insurance who cannot pay the full charge for the services they recieve. MHCs must accept patients covered by Medicare and Medicaid.

Primary Care Cooperative Agreements

The Public Health Service, under a program initiated in 1986, enters into primary care cooperative agreements (PCCAs) with individual State health departments and primary care associations.[21] PCCA grants are intended to facilitate the development of primary care services in underserved areas (both rural and urban). Recipients may use the grants to determine the need for primary care services and health professionals in underserved areas, and to assist in the recruitment and retention of health personnel and development of service delivery systems. As of 1989, 33 States had entered into PCCAs (*115a*).

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[19] CHC figures here refer to the number of centers receiving Federal grant funds, not the total number of clinic sites. CHCs may have more than one clinic site.

[20] In 1990, Infant Mortality Initiative funds were folded into the total CHC pool for distribution. Previously these funds were awarded separately.

PCCA participants enter into a formal agreement with the Federal Government based on a comprehensive plan developed by the State agencies for delivering primary care services in underserved areas (*656*). In one State, for example, the activities funded under the State's 1988 PCCA included:

- a survey to determine the effect of malpractice liability costs on the delivery of obstetric services in frontier areas;
- the establishment of a task force and work plan to improve coordination between CHCs and local health departments (e.g., in order to achieve more effective outreach to low-income pregnant women and improve medical record-sharing);
- support for various information projects (e.g., helping a senior citizens group to develop and distribute health fact sheets statewide;
- preparing a manual of available health data for rural parts of the State;
- developing a database on perinatal needs;
- exploring the feasibility of better coordination among rural CHCs; and
- providing technical assistance to CHCs for physician recruitment, marketing of services, service linkage development, grant writing, and board training (*701*).

Acute-Care Facilities and Services

Rural Health Care Transition Grants Program

The Rural Transition Grants Program is a legislative newcomer that was created in the Omnibus Reconciliation Act of 1987 (Public Law 100-203). This program, administered by the Health Care Financing Administration (HCFA), is intended to help small,[22] rural, nonprofit hospitals and their communities adapt to the following circumstances:

- changes in clinical practice patterns and service populations;
- excess acute-care capacity and declining ability to provide appropriate inpatient care staffing;
- increasing demand for ambulatory and emergency services and the need for integration of community health services; and
- the need for adequate access to emergency and inpatient care in areas where many underutilized hospital beds are being eliminated (Public Law 100-203).

The program was stimulated by the Minnesota Rural Health Transition Project (see ch. 6), which found that successful hospital transitions depended as much on the ability to perform an effective community needs assessment as on financial support (*261*). Transition Grant Program funds are intended to help rural hospitals examine the health needs of their service areas and plan and implement new services, coordinating services with other area providers when necessary. Eligible hospitals can apply for grants of up to $50,000 a year for up to 3 years.[23] Grant funds may not be spent on capital-related costs or to retire existing debts.

In 1989, HCFA received about 700 grant applications, one-third of which were from hospitals applying as part of hospital consortia (*102*).[24] HCFA awarded more than $8 million to 182 rural hospitals[25] in 45 States and Puerto Rico; funding to all grantees was for 1 year (*102*). Congress in late 1989 appropriated additional monies for the second year of grants for which the initial grantees are eligible, and also a new amount of grant funds for new hospital applicants (Public Law 101-239).[26] The agency is required to evaluate the grant program's effectiveness and ability to strengthen rural hospitals' administrative and financial capability (*102*).

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[21] Primary care cooperative agreements are authorized under Section 333(g) of the Public Health Service Act.

[22] Fewer than 100 beds.

[23] Before Public Law 101-239 was passed in late 1989, hospitals were only allowed to request grant funding for a maximum of 2 years.

[24] HCFA encouraged more than one hospital from a consortium to apply in order to promote cooperative planning among rural hospitals.

[25] There were 155 grantee hospitals, 11 of which were consortia containing a total of 27 hospitals.

[26] In 1990, HCFA expected to make new awards to approximately 185 additional hospitals (*102*).

RURAL HEALTH POLICY AND RESEARCH

A wide variety of Federal organizations with disparate mandates carry out some rural health research. For instance, HCFA, the Prospective Payment Assessment Commission, and the Physician Payment Review Commission have all undertaken studies of Medicare payment to rural physicians and hospitals. Other Federal organizations fund studies that are epidemiological or clinical in nature (e.g., studies of interventions to improve infant mortality). Some agencies have consolidated their rural research efforts; the National Institute of Mental Health established an Office of Rural Mental Health Research in early 1990, whose responsibilities will include administration of a Rural Mental Health Research Centers program (*640,641*).

Two Federal organizations have recently been established that have an especially strong and explicit link between rural health care policy and research. Descriptions of these two organizations follow.

Agency for Health Care Policy and Research

The Agency for Health Care Policy and Research (AHCPR) is the successor the National Center for Health Services Research and Health Care Technology Assessment, a long-established Federal health research organization. AHCPR was designated in 1989 to focus on the link between health research, evaluations of the effectiveness of health care interventions, and health policy (Public Law 101-239). Its authorizing legislation specified that the agency should pay particular attention to research, demonstration, and evaluation activities related to the delivery of health care services in rural areas.

AHCPR has carried out both intramural and extramural research on rural health topics for the past two decades. Studies funded in the 1970s evaluated a variety of approaches for building and strengthening rural health care delivery systems, while in the 1980s projects concentrated on rural hospital issues (e.g., costs and viability) and on the health care needs of specific populations (e.g., minorities, migrants, Native Americans) (*463*). In response to a congressional mandate, AHCPR supported a number of studies, presented at a conference in December of 1987, that served as the foundation for a discussion of a rural health research agenda for the 1990s .

Funds allocated to AHCPR's rural health research activities were $679,000 in fiscal year 1989 and $2.5 million in fiscal year 1990 (*463*). Activities funded with 1989 funds included studies of:

- rates of hospitalization among CHC and non-CHC users in Maine;
- health care access for uninsured residents in Nebraska;
- use of alternatives to traditional health care services by rural elderly, poor, and black populations;
- urban/rural differences in the use of health and social services by elderly individuals;
- the effectiveness and success of various rural hospital management strategies; and
- variations in resource use, costs, and outcomes among obstetric providers in Washington.

Office of Rural Health Policy

The Office of Rural Health Policy (ORHP), established in August 1987,[27] is located within HRSA and advises the Secretary of DHHS on a variety of rural health issues, particularly those regarding Medicare and Medicaid payment, availability of health professionals, and access to care in rural areas (*688*). As a component of this activity, the Office provides staff support to a committee, composed of members of both the public and private sectors. This committee advises the Secretary of DHHS on the priorities and strategies that should be considered in addressing the problems of financing and providing health care in rural areas.

In addition, the Office administers the Rural Health Research Center grant program, manages some rural health demonstration grants, and serves as an information broker for rural health care research findings and evaluations of innovative approaches to rural health care delivery. Under the Rural Health Research Center grant program (authorized in Public Law 100-203), ORHP in September 1988 awarded grants to five university-based research centers to collect and analyze information, conduct applied research on rural health, and disseminate the results.[28] The activities being conducted by these centers include:

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[27] Shortly after ORHP was established, Congress mandated its existence in legislation (Public Law 100-203).

- establishing a clearinghouse for State-level information on rural health initiatives and State laws affecting rural health;
- documenting the distribution of registered nurses in rural areas and issues relating to rural nursing practices;
- tracking the geographic variation in per capita expenses of Medicare beneficiaries in rural areas;
- compiling a national rural health atlas reflecting the health status and health services available to rural residents;
- examining patterns of change in rural residents' use of hospital services;
- describing the condition and roles of rural hospitals;
- examining the availability of obstetric care in rural areas; and
- surveying rural migrants and Mexican nationals near the southwest border to determine their health care utilization patterns and financial accessibility to care.

The Omnibus Budget Reconciliation Act of 1989 (Public Law 101-239) appropriated funds for up to four research centers in addition to the five already receiving funding.

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[28] The five centers receiving grants are: The Center for Rural Health Services at the University of North Dakota, Grand Forks; Marshfield Medical Research Foundation, Marshfield, Wisconsin; Health Services Research Center at the University of North Carolina, Chapel Hill; University of Washington School of Medicine, Seattle; and the University of Arizona School of Medicine, Tucson.

Chapter 4

The State Role in Rural Health

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Chapter 4

The State Role in Rural Health

INTRODUCTION

Faced with dwindling Federal resources, States have assumed more responsibility for defining and addressing their health care needs. The potential role for States in improving rural health services is large and diverse (table 4-1). To carry out this role, several States have created State offices of rural health, and many have developed specific legislative and administrative initiatives. In some States, sweeping changes in rural health care policy and delivery have developed quickly. In others, policymakers and planners are only just beginning to address rural health issues.

This chapter presents an overview of State rural health activities, discusses these activities, and profiles selected recent State rural health legislative initiatives.[1]

OVERVIEW OF STATE RURAL HEALTH ACTIVITIES: RESULTS OF AN OTA SURVEY

OTA conducted a survey of States in fall 1988 to identify: 1) those rural health issues States perceive to be most critical, and 2) specific activities and programs that States had undertaken during the past 3 years to address these issues. The survey targeted organizations that were either State-based or State-supported and that were involved in rural health planning, development, research, or policy. All 50 States responded to the survey.

The survey defined a State activity as any activity in which the State was involved directly (through regular paid staff time or State budget authority) or indirectly (e.g., through contract to an outside

Table 4-1—Potential State Roles for Improving Rural Health Services

Developing rural health policy
- Establish special office, task force, or commission
- Conduct special studies

Providing technical assistance and information to rural providers and community groups
- Provide technical assistance to promote regionalization and integration of services
- Provide information to providers and community groups

Assessing and changing State laws and regulations
- Assess impact of regulatory requirements for small and rural hospitals
- Change State licensure laws and regulations to promote greater flexibility in the staffing and configuration of rural medical facilities
- Change certificate-of-need requirements or create special exemptions for rural medical facilities
- Change State scope-of-practice laws to permit greater use of midlevel practitioners in rural areas
- Create more flexibility in the definition of "continuous service" for emergency medical facilities

Maintaining needed services
- Establish criteria for designating "essential" rural providers or for intervening in possible closure of rural hospital
- Provide grant funds to promote linkages between facilities and to stimulate the development of new models and approaches
- Create special capital equipment funds to assist hospitals needing access to low-interest capital loans

Increasing the availability of health professionals
- Establish scholarship programs for rural providers
- Fund rural preceptorship programs
- Permit and encourage the cross-training and multiple certification of allied health professionals

Increasing payment or financing
- Expand Medicaid eligibility for the poor
- Increase Medicaid reimbursement to reflect "true costs" of providing services in rural areas
- Stimulate private sector funding through subsidies for health insurance for low-income rural workers
- Change reimbursement to provide more incentives for providers practicing in rural areas
- Increase reimbursement to rural clinics providing Medicaid-covered ambulatory services
- Increase reimbursement for rural emergency medical services and transportation services

SOURCE: D. Helms, "The Role of the State in Improving Rural Health Care," paper presented at a rural health care workshop sponsored by the National Center for Health Services Research, Rockville, MD, Nov. 29 1988.

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[1] Other State rural health activities are discussed in chs. 7, 8, 11, 13, and 15 of this report.

Table 4-2—List of Respondents to OTA's 1988 Survey of State Rural Health Activities

State	Number of respondents	Entities whose activities were reported[a]
Alabama	1	* **Department of Public Health**
Alaska	1	* **Division of Public Health**, Department of Health and Social Services
Arizona	1	* **Rural Health Office**, University of Arizona
Arkansas	2	* **Section of Health Facilities, Services & Systems**, Department of Health
		* **Arkansas Area Health Education Centers Program**
California	2	* **Office of State Health Planning & Development**
		* **Rural and Community Health Division**, Department of Health Services
Colorado	1	* **Department of Health**
Connecticut	1	* **State of Connecticut**
Delaware	1	* **Division of Public Health**, Department of Health and Social Services
Florida	1	* **State of Florida**
Georgia	2	* **Center for Rural Health**, Georgia Southern College
		* **Primary Health Care Section**, Division of Public Health, Department of Human Resources
Hawaii	1	* **Department of Health**
Idaho	1	* **State of Idaho**
Illinois	1	* **State of Illinois**
Indiana	1	* **State of Indiana**
Iowa	1	* **State of Iowa**
Kansas	1	* **State of Kansas**
Kentucky	1	* **State of Kentucky**
Louisiana	1	* **State of Louisiana**
Maine	1	* **State of Maine**
Maryland	2	* **Primary Care Cooperative Agreement Unit**, Department of Health and Mental Hygiene
		* **Maryland Health Resource Planning Commission**
Massachusetts	1	* **Department of Public Health**
Michigan	1	* **Division of Health Facility Planning & Policy Development**, Bureau of Health Facilities, Department of Public Health
Minnesota	1	* **Department of Health**
Mississippi	1	* **Office of Primary Care Liaison**, Department of Health
Missouri	2	* **Bureau of Primary Care**, Division of Local Health & Institutional Services, Department of Health
		* **Certificate of Need Program**, Department of Health
Montana	1	* **Bureau of Health Planning**, Department of Health & Environmental Sciences
Nebraska	1	* **State of Nebraska**
Nevada	2	* **Nevada Office of Rural Health**, University of Nevada
		* **Division of Health**, Department of Human Resources
New Hampshire	1	* **Division of Public Health Services**, Department of Health and Human Services
New Jersey	1	* **State of New Jersey**
New Mexico	2	* **Primary Care Section**, Public Health Division, Department of Health and Environment
		* **New Mexico Health Resources**
New York	1	* **State of New York**
North Carolina	2	* **Office of Health Resources Development**, Division of Facility Services, Department of Human Resources
		* **North Carolina Area Health Education Centers Program**
North Dakota	2	* **Department of Health**
		* **Center for Rural Health Services, Policy & Research**, University of North Dakota
Ohio	1	* **Primary Care Section**, Office of Health Resources, Department of Health
Oklahoma	3	* **Oklahoma Health Planning Commission**
		* **Oklahoma Physician Manpower Training Commission**
		* **Department of Health**
Oregon	1	* **State of Oregon**
Pennsylvania	2	* **Division of Hospitals**, Department of Health
		* **Bureau of Health Financing & Program Development**, Department of Health
Rhode Island	1	* **State of Rhode Island**
South Carolina	1	* **Office of Primary Care**, Department of Health and Environmental Control
South Dakota	2	* **Department of Health**
		* **Rural Health Program**, University of South Dakota School of Medicine

Table 4-2—List of Respondents to OTA's 1988 Survey of State Rural Health Activities—Continued

State	Number of respondents	Entities whose activities were reported[a]
Tennessee	1	* **State of Tennessee**
Texas	3	* **Department of Health** * **Department of Agriculture** * **Texas Higher Education Coordinating Board**
Utah	1	* **State of Utah**
Vermont	1	* **State of Vermont**
Virginia	1	* **State of Virginia**
Washington	1	* **Department of Health**
West Virginia	1	* **Department of Health**
Wisconsin	1	* **State of Wisconsin**
Wyoming	1	* **Health Department**

[a] Boldface type indicates the entity for which the respondent reported activities. Normal type indicates the location of that entity within the State government or other organization.

SOURCE: Office of Technology Assessment, 1990.

organization). The survey asked central State health administrative officers in the targeted organizations about State activities in areas such as technical assistance, special rural health initiatives, personnel issues, and research. It did not explicitly attempt to obtain information about programs not formally linked to the State, although some respondents used open-ended questions to describe such programs. A description of the survey methods, a copy of the survey instrument, and a list of addresses of survey respondents are included in appendix D of the report.

General Description of Responding Organizations

Table 4-2 shows the entities whose activities are reflected in the survey.

Organizational Base and Authority

Of the 65 responding organizations in 50 States, 57 were State-based, 7 were university-based, and 1 was a private nonprofit organization created through Governor's action that later gained legislative authority. Most of the organizations (62 percent) had been established through State legislative authority, with a substantial minority (35 percent) established through administrative authority.

Funding

States inconsistently reported financial data,[2] but OTA was able to analyze State rural health activity funding sources for 1989 for 42 States and total rural health budget changes from 1987 to 1989 for 33 States.[3] Although the majority of States reported modest increases in their total rural health budgets from 1987 to 1989, the budgets of nearly one-fourth of the States (8 of 33) had decreased (table 4-3). States' dependence on Federal, State, and other funding sources varied widely. The proportion of funding derived from Federal sources ranged from 0

Table 4-3—Changes in State Rural Health Budgets[a], 1987-89

Percent change in rural health budget[a], 1987-89	Number of States[b]
-41 or less	2
-21 through -40	3
-1 through -20	3
0 through +20	13
+21 through +40	4
+41 or greater	8
Total number of States reporting	33

[a] Respondents were asked to provide figures reflecting their total budget for rural health activities for 1987, 1988, and 1989. Methods of budget calculation varied condiderably. For multiple respondent States, budget figures for all respondents were totaled and the percent change was calculated from the total.

[b] Responses from only 33 States were used in this analysis because some States were unable to provide comparison data for 1987.

SOURCE: Office of Technology Assessment, 1990.

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[2] See app. D.

[3] For States with more than one respondent, weighted percentages were determined if all respondents had provided financial data. If all respondents had not provided data, data from that State were regarded as missing.

Table 4-4—Funding Sources of Organizations Responding to OTA's Survey of State Rural Health Activities, 1989

	Mean percent of 1989 funding[a,b] derived from:		
	Federal sources	State sources	Other sources[c]
All States (42)[d]	44	42	12
Region:[e]			
Northeast (5)	51	35	15
South (15)	40	48	12
Midwest (12)	44	31	17
West (10)	47	49	5
"More rural" States (14)[f]	38	55	7
"Less rural" States (28)[f]	47	32	14
States with an ORH (11)[g]	47	42	11
States without an ORH (31)[g]	43	42	12

[a] Of the 42 States providing financial data, 41 provided 1989 budget estimates and 1 provided 1988 budget estimates. The 1988 budget estimate was averaged in with those for 1989.

[b] Means were calculated by averaging the individual percentages for each State within a given source category. This explains why the rows do not add up to 100.

[c] "Other" sources can include private funding, local funding, and fee-for-service revenues.

[d] Numbers in parentheses denote number of States in each category for which financial information was available for this analysis.

[e] See app. F for a list of States in each region.

[f] States were classified as "more rural" or "less rural" depending on the percentage of their population residing in nonmetro areas in 1986 ("more rural" = over 50 percent; "less rural" = 0-50 percent. (See app. D for a list of States.)

[g] An "office of rural health" (ORH) was either identified as such by a respondent or was known to be an office whose primary responsibility was to administer to the health needs of rural areas of the State. (See app. D for a list of ORH States and an explanation of how these States were identified.)

SOURCE: Office of Technology Assessment, 1990.

percent in one State to 100 percent in 6 States. Eighteen States (42 percent) derived more than 50 percent of their funding from Federal sources. State funding likewise ranged from 0 percent in 8 States to 100 percent in 5 States. Twenty-five States (59 percent) received more than 50 percent of their funding from State sources.[4]

In general, "more rural" States received a higher percentage of funding from State sources and a lower percentage of funding from Federal sources than did "less rural" States (table 4-4).[5] One explanation may be that "more rural" States are appropriating more State funds for rural health activities; alternatively, the Federal Government may be directing its rural health funding to "less rural" States. States with an office of rural health (ORH) had a higher percentage of funding from Federal sources than did States without an ORH.[6] A possible explanation is that ORH States have a more centralized focus for rural health efforts and have been more successful in obtaining Federal funding.

Mean proportions of State and Federal funding did not differ greatly among regions,[7] but States in the South and West reported somewhat greater dependence on State funding sources than did States in the Northeast and Midwest. States in the West reported much lower dependence on "other" funding sources (e.g., local and private funding and revenues).

Conversations with several respondents revealed that, in a number of States, the major source of funding was a Primary Care Cooperative Agreement with the U.S. Department of Health and Human Services (see ch. 3). Other Federal funding sources

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[4] The proportion of funding from sources other than Federal and State government ranged from 0 percent in 25 States to over 70 percent in 3 States.

[5] States were classified as "more rural" or "less rural" depending on the *proportion* of their population residing in nonmetro areas in 1986 ("more rural" = over 50 percent; "less rural" = 0 to 50 percent). (See app. D for a list of States.) Seventy-nine percent of the "more rural" States providing financial data received more than 30 percent of their funding from State sources, compared with 48 percent of "less rural" States.

[6] An "office of rural health" was either identified as such by a respondent or was known to be an office whose primary responsibility was to administer to the health needs of rural areas of the State. (See app. D for a list of ORH States and an explanation of how these States were identified.) Eighty-two percent of ORH States received more than 30 percent of their funding from State sources, compared with 50 percent of non-ORH States.

[7] States were divided into four standard regions: Northeast, South, Midwest, and West. (See app. F for the States included in each region.)

Table 4-5—Overall Activity Strength[a] of States Responding to OTA's Survey of State Rural Health Activities[b]

	"Less active" (0-15 activities)	"Active" (16-30 activities)	"More active" (31-54 activities)
U.S. total [50][c]	11 (22%)[d]	18 (36%)	21 (42%)
Within regions:			
Northeast [9]	3 (33%)	5 (56%)	1 (11%)
South [16]	3 (19%)	3 (19%)	10 (63%)
Midwest [12]	3 (25%)	5 (42%)	4 (33%)
West [13]	2 (15%)	5 (38%)	6 (46%)
"More rural" States [15]	3 (20%)	6 (40%)	6 (40%)
"Less rural" States [35]	8 (23%)	12 (34%)	15 (43%)
States with ORH [12]	0 (0%)	5 (42%)	7 (58%)
States without ORH [38]	11 (29%)	13 (34%)	14 (37%)

[a] Activity strength measures only number of reported activities, not level of effort expended in these activities.

[b] Respondents reported activities they had been directly involved in at any time during the past 3 years. The end date of this period was late 1988 or early 1989, depending on the State.

[c] Numbers in brackets denote number of States in each category for which data were analyzed.

[d] Numbers in parentheses indicate the percentage of States within that region or category that were "less active," "active," or "more active."

SOURCE: Office of Technology Assessment, 1990.

included block grant funding to State health departments, special research or program grants, and Federal funding to health professions schools.

Rural Health Objectives

Organizational objectives cited by respondents ranged from the very broad (e.g., providing information to increase awareness of rural health issues) to the very specific (e.g., providing mobile dental health services). Some of the more frequently mentioned objectives concerned:

- improving access to primary health care services, either throughout the State (13 States) or specifically in rural areas (12 States);
- provider recruitment and retention (22 States);
- rural health care systems development and network coordination (21 States);
- technical assistance to health care providers and communities (12 States);
- needs of underserved and at-risk populations (11 States);
- resource identification and procurement (7 States);
- support of emergency medical services activities such as planning, training, and technical assistance (6 States); and
- development of rural health policy, plans, and standards (5 States).

Rural Health Activities

Specific Activities

The survey asked whether responding organizations had been directly involved during the past 3 years in specific rural health activities within the following categories:[8]

- provider recruitment and placement;
- financial assistance to local organizations;
- technical assistance to rural communities, health facilities, and health providers;
- rural health research;
- rural health systems coordination and implementation;
- education;
- legislative affairs relating to rural health; and
- rural health-related publications.

The survey form suggested 54 specific activities within these categories; on the average, respondents identified 25.5 that were conducted in their State. Total number of activities ranged from 1 to 44. The number of activities reported tended to be greater in the South and West than in the Northeast and Midwest (table 4-5). No notable differences were found between "less rural" and "more rural" States; however, States with ORHs tended to engage in more activities than did other States.

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[8] As noted in app. D, the survey did not attempt to determine the level of effort respondents or their agencies were devoting to any given activity.

Table 4-6—State Provider Recruitment and Placement Activity[a]

	Number of States that recruited providers			Range of number of placements in States that placed at least one provider	Number of States that did not recruit
	Total	Recruited & placed	Recruited but did not place[b]		
Physician (MD/DO)[c]	35	33	2	1 - 602	14
Registered nurse[c]	16	11	5	1 - 520	33
Nurse practitioner	19	7	12	1 - 10	31
Physician assistant	17	7	10	1 - 12	33
Mental health professional	15	8	7	2 - 17	35
Dentist	8	8	0	1 - 8	42
Pharmacist	3	3	0	1 - 27	47
Physical therapist	4	4	0	1 - 12	46
Paramedic	1	1	0	19 - 19	49
Other providers[d]	10	10	0	1 - 194	40

[a] States were asked to report the number of providers recruited and placed during the past 3 years. The end date of this period was late 1988 or early 1989, depending on the State. Numbers reflect only recruitment and placement activity carried on by the responding State organizations, which may only be a small proportion of all such activity in the State.

[b] This indicates the number of States that recruited a particular type of provider but did not place any during the past 3 years. For example, if a State recruited 9 physicians and only placed 3, it would not be counted in this column but rather in the second column of this table. In this sense, it is an underestimation of the number of States that had difficulty filling all of the positions for which they were actively recruiting.

[c] Data not available for one State.

[d] Other providers recruited include: nutritionists, licensed practical nurses, occupational therapists, speech therapists, dental hygienists.

SOURCE: Office of Technology Assessment, 1990.

Provider Recruitment and Placement—Thirty-eight of the 50 States (76 percent) reported that they had engaged in provider recruitment and placement activities.[9] Of these, more reported recruitment and placement of physicians than of other health professionals (table 4-6). The number of providers placed varied widely. One State had placed only a single physician during the past 3 years, while another had placed 602. A considerable number of States reported unsuccessful attempts to recruit nurse practitioners and physician assistants. States most frequently recruited through the National Health Service Corps (NHSC), service-contingent State scholarships, State loan forgiveness/repayment programs, and placement services (figure 4-1). Nine States reported using other types of financial incentives (e.g., recruitment travel assistance) to attract and place health personnel.

Regional comparisons showed the South to be particularly active in provider recruitment and placement. More States in the South (63 percent) were likely to use the NHSC as a recruitment source than were States in the Northeast (22 percent), West (50 percent), and Midwest (42 percent).[10] Southern States were also more than twice as likely as States in other regions to recruit through State loan forgiveness/repayment and scholarship programs. Other recruitment methods used by States included:

- a program that provided travel allowances to prospective physicians for visits to practice sites (North Carolina),
- a bonus of $20,000 to any physician willing to locate in a designated shortage area (Oklahoma),
- a loan fund to help physicians and communities establish rural primary care clinics (Arkansas),
- a program to provide equipment and startup funds for physicians locating in areas eligible for the State's loan forgiveness program (New York),
- establishment of rural placement offices in State medical schools (Oklahoma),
- a tuition reimbursement program for physicians locating in communities of 2,500 or fewer

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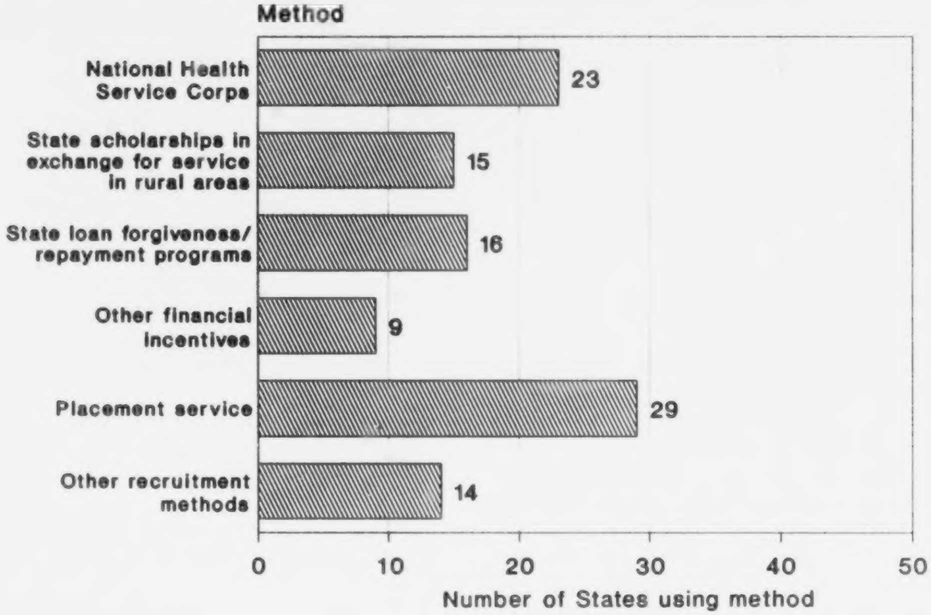
[9] These numbers reflect only recruitment and placement activity carried on by the responding State organizations, which may only be a small percentage of all such activity in the State.

[10] This may be a reflection of the relatively high concentration of potentially qualifying NHSC placement sites in the South compared with other regions (see ch. 11).

Figure 4-1—State Use of Provider Recruitment and Placement Methods[a]



[a]States were asked to report methods used to recruit personnel during the past 3 years. The end date of this period was late 1988 or early 1989, depending on the State.

SOURCE: Office of Technology Assessment, 1990.

residents (South Dakota),

- payment of malpractice insurance premiums for obstetricians (Tennessee),
- requirements that State medical residency programs actively recruit physicians to underserved areas (Texas),
- newsletters advertising available positions,
- low-interest loans in exchange for service in rural areas, and
- a *locum tenens*[11] program for nurse practitioners and physician assistants.

In telephone conversations and in open-ended responses, some respondents indicated that reduction of the Federal NHSC program had had a negative impact on physician availability in underserved rural communities.

Financial Assistance to Local Organizations—Thirty-five States (70 percent) were offering some form of financial assistance to local organizations and individuals. Only 3 were providing loans to local organizations, while 9 were providing funds on a matching basis, and 31 were providing direct unmatched subsidies. Fifteen States were providing other types of financial assistance. States in the Northeast and South were more likely to have provided local financial assistance than were those in the Midwest and West. Some examples of State financial assistance include:

- provision of living allowances to nursing and medical students while they are in clinical training at rural practice sites (Arizona),
- loan fund to support the development of local services and improve access to services (Arkansas),
- a Mortgage Loan Insurance Program to help health facilities finance capital expenditures at reasonable cost (California),
- matching funds for local transport systems for newborn infants (Delaware),
- rural medical school demonstration projects (Florida), and
- funds for recruitment and retention of primary care providers in community health centers (Tennessee).

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[11] This is a program that provides personnel to cover for practitioners during vacation, educational, or other leave periods.

Table 4-7—State Involvement in Rural Health Technical Assistance Activities[a]

Activity	States reporting involvement (N=50)
Technical assistance to rural communities:	
HMSA/MUA/MUP[b] designations	41 (82%)
Statewide rural health needs assessment	29 (58%)
Other needs assessments[c]	34 (68%)
Community board training	24 (48%)
Grant application assistance	39 (78%)
Program planning	37 (74%)
Resource identification	45 (90%)
Other types of technical assistance	16 (32%)
Technical assistance to rural health facilities/providers:	
Facility development/construction consultation	26 (52%)
Grant application assistance	40 (80%)
Management assistance	31 (62%)
Other types of technical assistance	18 (36%)

[a] Respondents reported activities they had been directly involved in at any time during the past 3 years. The end date of this period was late 1988 or early 1989, depending on the State.

[b] HMSA = Health Manpower Shortage Area; MUA = Medically Underserved Area; MUP = Medically Underserved Population. These are Federal designations used for the allocation of Federal health resources, and they require substantial involvement of State and local officials in the designation process (see ch. 11).

[c] Includes assessments of needs of particular areas, population, and health facilities and services.

SOURCE: Office of Technology Assessment, 1990.

Technical Assistance—States were very active in providing technical assistance to rural communities, health facilities, and health providers (table 4-7). Out of 12 listed on the survey, the mean number of technical assistance activities reported by States was 7.6. Only one State reported no involvement in such activities. The types of technical assistance most frequently provided by States were resource identification, Federal shortage area designation application assistance,[12] grant application assistance, and program planning assistance. Other technical assistance activities included:

- accreditation workshops for rural health facilities,
- technical assistance to rural facilities for certificate-of-need (CON) and licensure application,
- physician recruitment assistance,
- health provider contract negotiation,
- rural socioeconomic assessments and rural survey assistance,
- assistance to small hospitals restructuring their service and governing structures,
- market research and education,
- analysis of trends in rural hospital utilization and financing, and
- expansion of Rural Health Clinic certification.

Research—Nearly three-fourths of all States reported that they had conducted research on the health status of rural populations or on rural health personnel. Over one-half had conducted research on rural health services utilization, rural health systems coordination, or insurance coverage in the rural population (figure 4-2).[13]

Rural Health Systems Coordination and Implementation—Most States had undertaken activities to promote the coordination of rural health services and facilities through the development of networks and systems of facilities and providers (figure 4-3). Only three States (6 percent) reported no such involvement. Participants in State-promoted health system "alliances"[14] included, but were not limited to: hospitals, primary care providers, health departments, mental health centers, health professions education institutions, State primary care associa-

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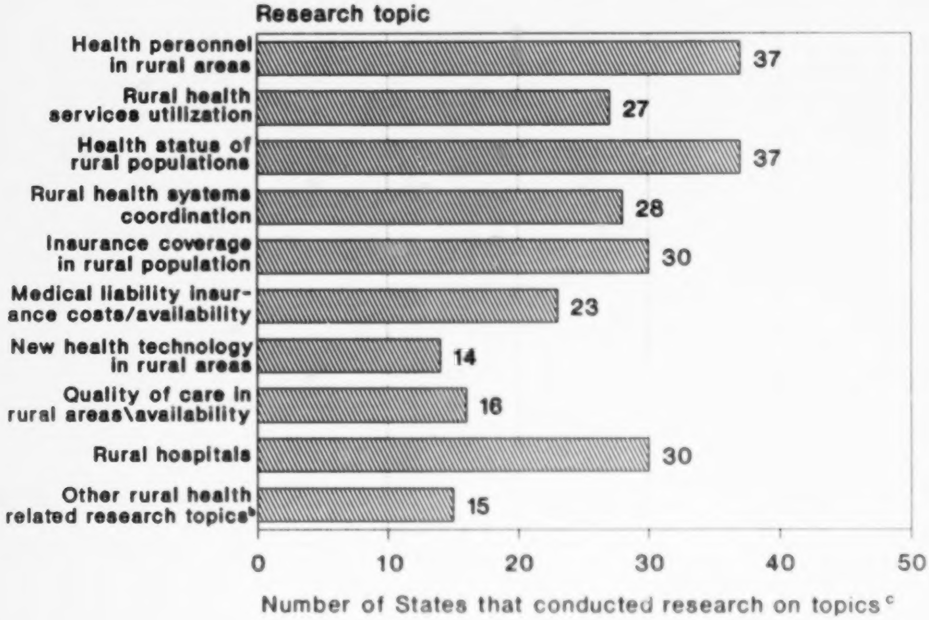
[12] Federal shortage area designations include Health Manpower Shortage Areas and Medically Underserved Areas/Populations. See ch. 11 for discussion of Federal and State shortage area designations.

[13] Responses reflect research efforts on a variety of levels—primary and secondary, formal and informal.

[14] The term "alliance" was not defined in the questionnaire. It may include arrangements ranging from mergers to shared purchase or staffing arrangements to informal referral networks between medical and other human service providers in rural and urban areas.

Figure 4-2—State Involvement in Rural Health Research Activities[a]



[a] Respondents reported activities they had been directly involved in at any time during the past 3 years. The end date of this period was late 1988 or early 1989, depending on the State.

[b] Other rural health-related topics included: border health utilization patterns (AZ); allied health personnel in rural hospitals (FL); emergency medical services (GA); perinatal care access (GA); family planning (GA); access to pharmacy services (GA); knowledge and practices in underserved populations regarding acquired immunodeficiency syndrome (GA); geriatric care (HI); long-term care (MD); travel time between rural hospitals (MD); frontier health services (NM, SD); Federal and State-funded primary care centers (TN); site-specific epidemiologic studies (TX); transportation systems in shortage areas (WA).

[c] Valid responses were received from all 50 States.

SOURCE: Office of Technology Assessment, 1990.

tions, nursing homes, laboratories, and pharmacies. Over one-half of States had promoted alliances between hospitals and other health providers, while nearly four-fifths of States had promoted alliances that involved only nonhospital providers.

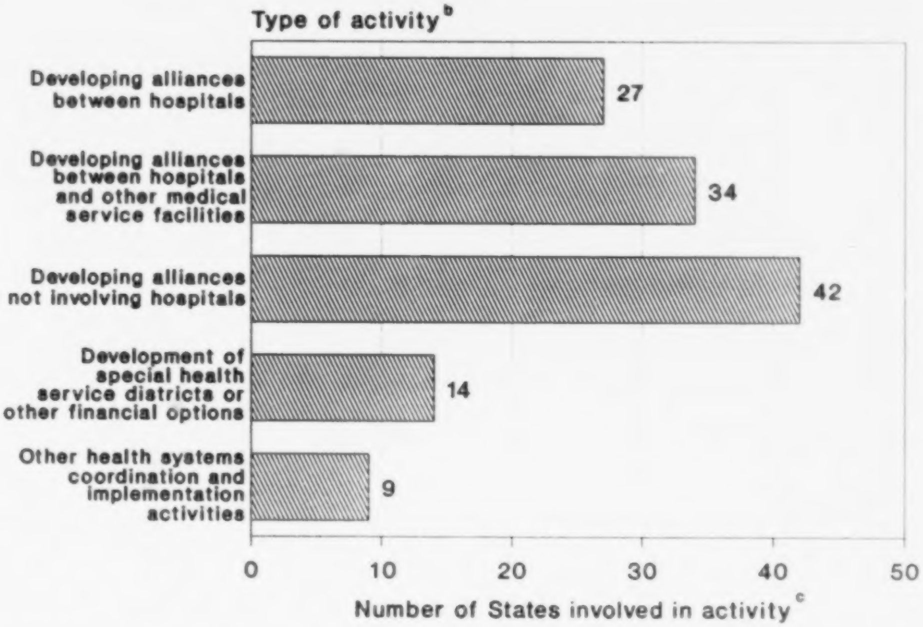
Nine States reported involvement in other types of rural health systems coordination and implementation activities, including:

- the development of adolescent health services and prehospital emergency medical services (Hawaii);
- the Iowa Rural Work Group, which provided a forum for discussion of a variety of rural concerns among representatives of Federal and State agencies;
- defining "rational service areas" for primary care to assist in State and local planning efforts (Nevada);
- development of multicounty health districts to help consolidate and integrate health resources in contiguous counties (Texas); and
- grant programs to encourage formation of alliances between health service facilities (New York).

Educational Activities—Forty-five States were conducting rural health-related educational activities, with five States reporting no such activities. Over two-thirds were involved in health professions education for rural providers, and well over one-half were involved in providing continuing education for rural health professionals. Over one-half had organized Statewide rural health conferences (figure 4-4).

Legislative Affairs—Forty-four States reported involvement in legislative affairs. Thirty-four had developed task forces or committees to address rural health issues. Thirty-nine of the responding organizations had worked with State legislatures and/or legislative committees on rural health issues. Six reported other types of involvement in legislative affairs related to rural health. States in the Northeast

Figure 4-3—Stated Involvement in Rural Health Systems Coordination and Implementation Activities[a]



[a] Respondents reported activities they had been directly involved in at any time during the past 3 years. The end date of this period was late 1988 or early 1989, depending on the State.
[b] The term "alliance" was not defined for respondents, and may include a variety of formal and informal arrangements.
[c] Valid responses were received from all 50 States.

SOURCE: Office of Technology Assessment, 1990.

were considerably less likely to report involvement in legislative affairs (56 percent) than were States in the South (100 percent), Midwest (92 percent), and West (92 percent).

Publications—Rural health-related publications had been produced by respondents in 40 States.[15] The most common were policy recommendations (21 States), newspaper articles (20), research reports (18), newsletters (18), and information packets (17). Other publications included annual reports and evaluation reports.

Priority Areas for Rural Health Activities—The survey asked respondents to choose three top priority areas from among the nine broader activity categories. As figure 4-5 shows, States most frequently ranked rural health systems coordination and implementation, provider recruitment/placement, and technical assistance as high priorities.

See table 4-8 for the distribution of selected rural health activities by State.

Comparative Characteristics of Active States

No notable differences in overall activity strength emerged between "more rural" and "less rural" States (see table 4-5). Concerning specific activity categories (table 4-9), "more rural" States were slightly less likely to have engaged in NHSC recruitment activity, financial assistance to local organizations, and rural health systems coordination and implementation activities, but they were slightly more likely to indicate involvement in legislative affairs than were "less rural" States.

States with identifiable offices of rural health were more likely to be "active" or "very active" than were non-ORH States (see table 4-5). ORH States were slightly more likely to have engaged in general provider recruitment and placement activities, NHSC activity, and educational activities, and

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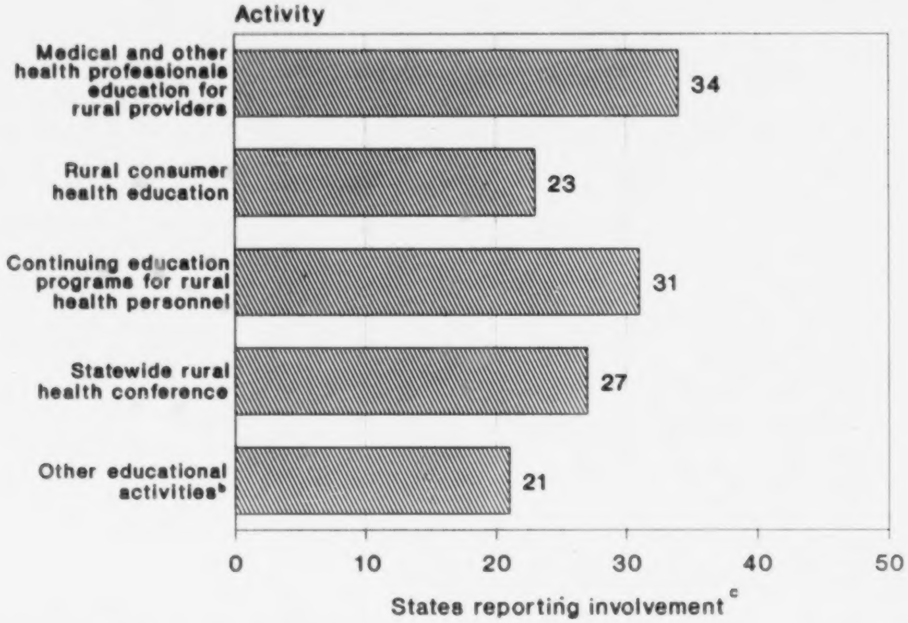
[15] Nine States reported no publications, and one State did not provide information regarding publications.

Figure 4-4—State Involvement in Rural Health Educational Activities[a]



[a] Respondents reported activities they had been directly involved in at any time during the past 3 years. The end date of this period was late 1988 or early 1989, depending on the State.

[b] Other rural health-related educational activities reported by States include: statewide emergency medical services conferences; developing institutional alliances; local board training; management assistance workshops for rural providers; assistance in Area Health Education Center planning and liaison activities; and grant writing seminars.

[c] Valid responses were received from all 50 States.

SOURCE: Office of Technology Assessment, 1990.

they were much more likely to have conducted research activities or to have developed special task forces or committees to address rural health issues. ORH States were less likely, however, to have service-contingent State loan forgiveness/repayment or scholarship programs.

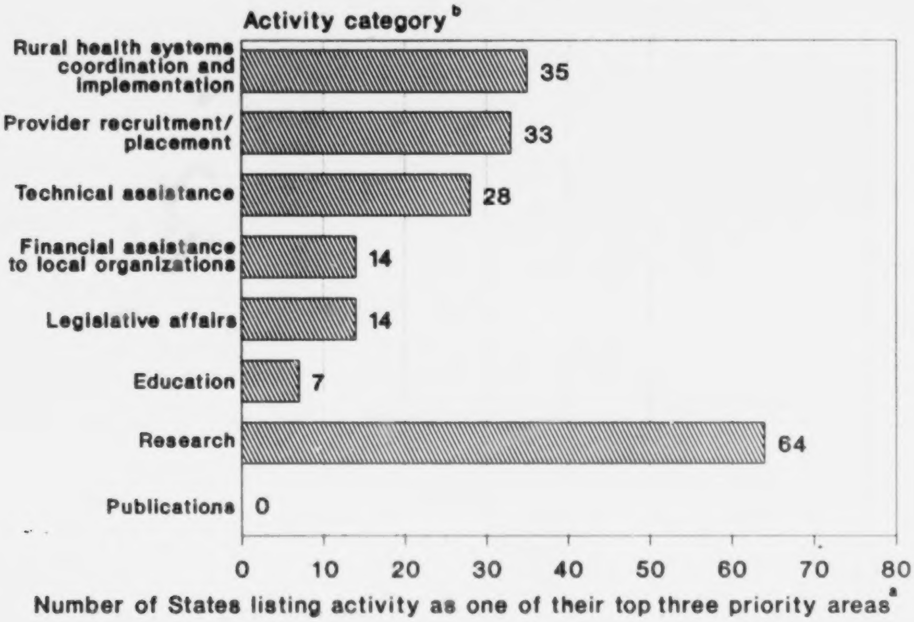
Ranking of Selected Rural Health Issues

OTA asked respondents to rank six general health care delivery issues for the extent to which they posed problems for rural areas (table 4-10). Health personnel problems were the most pervasive. They were more likely than any other issue to be ranked highly, regardless of region, degree of rurality, or presence of an ORH. Payment issues were also frequently ranked among the top three problems. Every issue was considered most important (ranked first) by at least one State. States in the Northeast and South more frequently ranked meeting the needs of special populations highly, while States in the Midwest and West more frequently stressed payment issues. Quality of care emerged as a major concern more frequently in the Northeast than in other regions, whereas Southern States were more likely to emphasize services issues.

While "less rural" States were much more likely to rank medical liability insurance costs/availability highly, "more rural" States were more likely to identify payment issues and meeting the needs of special populations as major problems. ORH States were more likely to stress medical liability insurance costs/availability and less likely to identify quality of care as a major problem than were non-ORH States.

States' activities were not consistently linked to their perceptions of key issues (table 4-11). In general, States that ranked a given issue among the top three were either slightly more likely than or equally as likely as other States to be involved in related activities. Activities that did not fit this pattern included use of NHSC as a recruitment method, State scholarship program, medical and other health professions education, continuing edu-

Figure 4-5—State Priorities for Rural Health Activities[a] [b]



[a]For multiple respondent States, results are based on the response of a single respondent in each State identified as most knowledgeable about and central to State rural health activities. Data were missing for one State.

[b]These categories correspond to activity categories on the survey instrument. Some respondents may have answered this question based on their current priorities rather than on priorities that guided their activities during the previous 3 years.

SOURCE: Office of Technology Assessment, 1990.

cation for rural health professionals, and targeting of uninsured populations in rural health programs and activities. In these cases, States that had not ranked the related issue in the top three were *more* likely than other States to be involved in the activity.

Current and Future State Activities in Rural Health

The survey asked respondents to briefly describe three current activities or programs in their State that had been effective in addressing rural health issues.[16] Examples ranged from creating an ORH to providing services to rural people with acquired immunodeficiency syndrome (AIDS). Some of the more frequently cited effective activities included:

- provider recruitment and retention activities (both educational and financial incentives),
- technical assistance activities,
- Medicaid expansion or reform, and
- primary care systems and facility development.

Finally, the survey asked respondents to describe activities they would most like to see in their State to address rural health issues in the future. Among the wide variety of activities described, those most frequently mentioned included:

- improving the availability of primary care services in rural areas;
- creation of a State ORH;
- development of rural health policy, plans, and standards;
- facility planning and development;
- improvement of health insurance coverage;
- Medicaid expansion/reform;
- provider recruitment and placement (loan repayment/forgiveness program, scholarship program, development of rural-oriented curricula in health professional schools); and
- building stronger statewide rural health coalitions or consortia.

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[16] Only one respondent indicated no current rural health activities.

Table 4-8—Selected State Rural Health Activities From OTA's Survey of State Rural Health Activities[a]

	Provider recruitment/retention				Technical assistance											
State	Loan forgiveness/ repayment programs	State scholarships in exchange for service in rural areas	Placement service	Financial assistance to local organizations	Needs assessments	Grant application assistance	Program planning	Management assistance	Resource identification	Facility development or construction consultation	Research	Systems coordination and implementation	Continuing education for providers	Statewide conference	Task force/committee to address issues	Work with legislatures/ legislative committees
Alabama		X		X	X	X	X	X	X	X	X	X	X	X	X	X
Alaska				X	X	X	X	X		X	X	X	X		X	X
Arizona			X	X	X	X	X	X	X		X	X	X	X	X	X
Arkansas	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
California	O	O	O	X	X	X	X	X	X	X	X	X			X	X
Colorado			X	O	X	X			X	X	X	X		X		X
Connecticut				X	X	X	X	X	X	X	X	X	X			*
Delaware	O	O	O	X		X					X	X				X
Florida	X		X	X	X	X	X	X	X		X	X	X		X	X
Georgia						X	X	X	X		X	X	X	X	X	X
Hawaii				X	X	X	X	X	X	X	X	X	X	X	X	X
Idaho		X			X	X	X	X	X		X	X	X		X	
Illinois	X	X					X		X	X	X	X			X	X
Indiana	X	X	X	X	X	X	X		X		X	X	X			X
Iowa	O	O	O	X	X	X	X		X		O	X		X	X	X
Kansas	O	O	O	X		X		X	X	X		X	X			X
Kentucky	X	X	X	X	X	X	X	X	X		X	X	X	X		X
Louisiana			X		X	X	X	X	X	X	X	X	X	X	X	
Maine	X		X	X	X	X	X		X	X	X	X	X	X	X	X
Maryland	X	X	X	X	X	X	X	X	X	X	X	X	X			X
Massachusetts				X	X	X	X	X	X		X	X	X		X	
Michigan				O		X	X	X	X			X		X	X	X
Minnesota	O	O	O	X	X	X	X		X		X	X	X	X	X	X
Mississippi			X		X		X		X		X	X	X			X
Missouri	X		X	X	X	X	X	X	X	X	X	X		X		X
Montana						X			X	X						X
Nebraska		X	X		X	X			X		X	X		X	X	X
Nevada			X	X	X	X	X	X	X		X	X	X		X	X
New Hampshire				X							X					
New Jersey	O	O	O	X	X				X	X	X	X	O	O	X	X
New Mexico	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
New York	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X
North Carolina	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
North Dakota			X	X	X	X	X	X	X	X	X	X	X	X		X
Ohio			X	O		X	X	X	X			X				
Oklahoma	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X
Oregon			X	X	X	X	X	X	X	X	X	X	X	X	X	X
Pennsylvania			X	X	X							X		X		
Rhode Island			X	O		X			X		X	X				
South Carolina		X	X	X		X			X			X	X		X	
South Dakota				O	X	X	X	X	X	X	X	X	X	X	X	X
Tennessee	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Texas	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Utah			X		X	X	X	X	X	X	X	X	X		X	X
Vermont	O	O	O	X	X		X		X		X	X	X		X	
Virginia		X		X	X	X			X		X	X	X		X	X
Washington	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
West Virginia	X	X	X	X	X	X			X		X	X	X	X	X	X
Wisconsin			X		X	X	X	X	X		X	X		X	X	X
Wyoming	O	O	O								O	O			O	O

X = Responding organizations from the State indicated that they had been directly involved in this particular activity during the past 3 years (approximate range of years: 1986 through 1988).

O = Responding organizations indicated that, although they had not been directly involved in this activity during the past 3 years, other organizations in the State may have been involved.

* = Noted in reviewer's comments—does not reflect original survey response.

[a] See table 4-2 for a list of the organizational entities whose activities were reported in this survey. See app. D for a copy of the survey instrument. Respondents reported activities they had been directly involved in at any time during the past 3 years. The end date of this period was late 1988 or early 1989, depending on the State.

SOURCE: Office of Technology Assessment, 1990.

Table 4-9—Selected Rural Health Activities: Comparison of "More Rural" and "Less Rural" States and States With and Without Identifiable Offices of Rural Health (ORHs)

	Percent of States involved in activity:			
	"more rural"[a] (N=15)	"less rural"[a] (N=35)	ORH[b] (N=12)	non-ORH[b] (N=38)
Provider recruitment/placement	73.3	77.1	91.7	71.1
National Health Service Corps	40.0	48.6	58.3	42.1
State loan forgiveness/repayment program	33.3	31.4	25.0	34.2
Service-contingent State scholarships	33.3	28.6	16.7	34.2
Financial assistance to local organizations	60.0	74.3	75.0	68.4
Technical assistance	100.0	97.1	100.0	97.4
Research	80.0	85.7	100.0	78.9
Research on health personnel	73.3	73.5	91.7	68.4
Rural health systems coordination and implementation	86.7	97.1	100.0	92.1
Education	86.7	91.4	100.0	86.8
Legislative affairs	93.3	85.7	91.7	86.8
Development of task force/committee to address rural health issues	68.7	67.6	83.3	63.2

[a] States were classified as "more rural" or "less rural" depending on the percentage of their population residing in nonmetro areas in 1986 ("more rural" = over 50 percent; "less rural" = 0-50 percent. (See app. D for a list of States.)

[b] An "office of rural health" was either identified as such by a respondent or was known to be an office whose primary responsibility was to administer to the health needs of rural areas of the State. (See app. D for a list of ORH States and an explanation of how these States were identified.)

SOURCE: Office of Technology Assessment, 1990.

A CLOSER LOOK AT STATE RURAL HEALTH ACTIVITIES

State Offices of Rural Health

A number of States have attempted to give their rural health efforts a more central focus by creating a formal ORH to coordinate, advocate, plan, administrate, and evaluate various rural health activities at the State level. ORHs may be located within the State government, within a separate State-funded organization (e.g., a university), or in an organization that is entirely independent of the State government. In OTA's survey, most "ORH States" have State-based ORHs.[17] The survey found "OHR States" to be more active than others in rural health activities. There are several possible explanations for this finding. First, the existence of a centralized entity whose primary purpose is to address rural health care issues may enhance the State's level of effort. Second, States that place a higher priority on rural health issues may be more active and more likely to have established a State ORH. Third, States with ORHs may have been in a better position than other States to respond to questions regarding specific rural health activities and problems in the survey. ORH States reported larger proportions of State funding (table 4-3), suggesting that more targeted State funding is available in States that have taken steps to centralize efforts.

The 19 ORHs identified by OTA in 1990, based both on OTA's survey and on a survey conducted in 1988 by the National Rural Health Association (NRHA) (*426*), were located in State agencies, universities, Area Health Education Centers (AHECs), and other organizations (table 4-12).[18] At least six offices had been established since 1986, and an additional six States were interested in or planning to establish ORHs. The range and extent of ORH functions varies greatly and may include health personnel recruitment and retention, health personnel and consumer education, technical assistance and consultation, research and evaluation, informa-

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[17] See app. D for the definition of "office of rural health" used in the survey.

[18] The number of ORHs in table 4-12 differs from the number identified in OTA's 1988 Survey of State Rural Health Activities because not all 19 ORHs were in existence in 1988 and some were not identified as appropriate respondents.

Table 4-10—State Ranking of Six Major Rural Health Care Delivery Issues, 1989[a]

Issue	Number of States[b,c] giving the issue a ranking of: (1)	(2)	(3)	(4)	(5)	(6)	(7)
A. Health provider issues (e.g., shortages, recruitment/retention)	22	13	10	4	1	0	0
B. Meeting the needs of special populations	10	10	8	14	5	3	0
C. Payment issues (e.g., Medicare, insurance coverage of rural populations)	10	14	7	13	6	0	0
D. Medical liability insurance costs/ availability	4	7	6	5	9	18	1
E. Services issues (e.g., hospital closures/ restructuring, systems planning and development)	3	5	15	5	14	8	0
F. Quality of care	2	1	5	9	13	20	0
G. Other issues[d]	0	0	0	0	0	1	2

	Number and percent of all States ranking issue among the top 3: (A)	(B)	(C)	(D)	(E)	(F)
U.S. total [50][e]	45 (90%)	28 (56%)	31 (62%)	17 (34%)	23 (46%)	8 (15%)
Northeast [9]	9 (100%)	6 (67%)	3 (33%)	2 (22%)	4 (44%)	3 (33%)
South [16]	12 (75%)	11 (69%)	9 (56%)	5 (31%)	9 (56%)	2 (13%)
Midwest [12]	11 (92%)	5 (42%)	9 (75%)	5 (42%)	5 (42%)	1 (8%)
West [13]	13 (100%)	6 (46%)	10 (77%)	5 (38%)	5 (38%)	2 (15%)
"More rural" States [15][f]	13 (87%)	10 (67%)	12 (80%)	2 (13%)	6 (40%)	2 (13%)
"Less rural" States [35][f]	32 (91%)	18 (51%)	19 (54%)	15 (43%)	17 (49%)	6 (17%)
States w/ an ORH [12][g]	11 (92%)	7 (58%)	8 (67%)	6 (50%)	5 (42%)	1 (8%)
States w/o an ORH [38][g]	34 (90%)	21 (55%)	23 (61%)	11 (29%)	18 (47%)	7 (18%)

[a] Date of ranking may be late 1988 or early 1989, depending on the State.

[b] Valid responses were received from all 50 States.

[c] For multiple respondent States, results are based on the response of a single respondent in each State who was identified as most knowledgeable about and central to State rural health activities.

[d] A blank line was provided on which respondents could list an additional "general issue" and incorporate it into the ranking scale accordingly. The three "other" issues listed by respondents were: alternative delivery models; availability of obstetrics services; unspecified.

[e] Numbers in brackets denote number of States within each region or category.

[f] States were classified as "more rural" or "less rural" depending on the percentage of their population residing in nonmetro areas in 1986 ("more rural" = over 50 percent; "less rural" = 0-50 percent. (See app. D for a list of States.)

[g] An "office of rural health" (ORH) was either identified as such by a respondent or was known to be an office whose primary responsibility was to administer to the health needs of rural areas of the State. (See app. D for a list of ORH States and an explanation of how these States were identified.)

SOURCE: Office of Technology Assessment, 1990.

tion dissemination, advocacy, health systems development and integration, and direct service (*426*).

State ORHs may also be of value in coordinating and implementing Federal rural health initiatives. In the 1988 NRHA survey of State ORHs, respondents saw the Federal Office of Rural Health Policy as playing a central role in dissemination of information regarding funding sources for rural health programs and activities, while State ORHs were seen as playing a critical role in determining State and regional rural health needs and guiding a more rational allocation and coordination of resources at these levels. Respondents also felt that the Federal office could assist in the development of new State ORHs by helping State governments identify potential resources and other State models. Examples of two States that have recently created ORHs are presented in box 4-A.

Selected Examples of State Legislative and Administrative Activity

The creation of special task forces or committees is a common step towards a comprehensive examination of State rural health issues. Thirty-four States

Table 4-11—Relationship Between States' Perception of Major Rural Health Issues and Specific Rural Health Activities

Issue	Ranked issue 1-3 (number of States)		Related activity	States ranking issue 1-3 and involved in the activity		States NOT ranking issue 1-3 and involved in the activity	
	Yes	No		Number	Percent[a]	Number	Percent[b]
Provider issues	45	5	Had actively placed providers during past 3 years	34	(75%)	4	(80%)
			Had used NHSC as a recruitment method	20	(44%)	3	(60%)
			State loan forgiveness/repayment program	15	(33%)	1	(20%)
			State scholarship program	13	(28%)	2	(40%)
			Placement service	26	(57%)	3	(60%)
			Research on health personnel in rural areas	33	(73%)	4	(80%)
			Medical and other health professions education	29	(64%)	5	(100%)
			Continuing education for rural health professionals	27	(60%)	4	(80%)
Medical liability insurance costs/ availability	17	33	Rural health-related research on medical liability insurance costs/availability	9	(53%)	14	(42%)
Meeting the needs of special populations	28	22	Had targeted some of their rural health activities to special populations	26	(93%)	20	(91%)
			Research on health status of rural populations	20	(71%)	17	(77%)
Payment issues	31	19	Research on insurance coverage in rural populations	20	(64%)	10	(53%)
			Research on rural hospitals	20	(64%)	10	(53%)
			Development of health service districts or other financial options	10	(32%)	5	(26%)
			Had targeted uninsured populations in some of their rural health activities	22	(70%)	16	(84%)
			Had targeted low-income populations in some of their rural health activities	27	(87%)	16	(84%)
Quality of care	8	42	Research on quality of care in rural areas/facilities	4	(50%)	12	(29%)
			Research on new technology in rural areas	3	(38%)	11	(26%)
Services issues	23	27	Had provided some form of technical assistance to rural communities	23	(100%)	26	(96%)
			Had provided some form of technical assistance to rural health facilities/providers	22	(96%)	21	(78%)
			Rural health systems coordination/implementation activities	22	(96%)	25	(93%)
			Research on rural health services utilization	14	(61%)	13	(48%)
			Research on health systems coordination	15	(65%)	13	(48%)
			Research on rural hospitals	18	(78%)	12	(44%)

[a] Percentage of States who ranked the related issue 1-3 and were involved in the activity.

[b] Percentage of States who did not rank the issue 1-3 and were involved in the activity.

SOURCE: Office of Technology Assessment, 1990.

Table 4-12—States With Offices of Rural Health, 1990

States with Offices of Rural Health:

State	Location of ORH
Arizona	University
Arkansas	State agency
California	State agency
Connecticut[b]	State agency
Georgia[c]	State agency & university
Illinois[c]	State agency
Iowa[a]	State agency
Kansas[c]	State agency
Nebraska[a]	State agency
Nevada	University
New Mexico	Not-for-profit organization
North Carolina	State agency
North Dakota	University
Oregon	State agency
South Dakota[c]	State agency & university
Texas	University
Utah	State agency
Washington	Area Health Education Center
Wisconsin	University

States interested in or planning to establish Offices of Rural Health:

Alabama
Alaska
Michigan
Minnesota
Mississippi[d]
Montana

[a] Established since 1986.

[b] Office of rural and urban health.

[c] Established since 1988.

[d] A 1990 bill (S.B.2398) pending in the Mississippi State Legislature would create an office of rural health within the State Department of Health. There is an existing Rural Health Research Program in the University of Mississippi School of Pharmaceutical Sciences, but it is not involved in rural health policy or planning.

SOURCE: Office of Technology Assessment, 1990. Based on data from National Rural Health Association, "Report of the Task Force on Offices of Rural Health and State Rural Health Associations," National Rural Health Association, Kansas City, MO, Aug. 12, 1988, as updated by OTA.

Box 4-A—Recently Created State Offices of Rural Health: Two Examples

Iowa—Created in 1989, the Iowa Office of Rural Health is located within the Department of Public Health (*302*). It is required by law to submit a report and recommendations to the State legislature on the impact of current Medicare reimbursement policy on rural hospitals and other providers; to provide assistance to rural communities to improve reimbursement through participation in the Rural Health Clinics program (see ch. 3) and establishment of skilled nursing facility beds; and to coordinate research on health status and morbidity. It was also required to make recommendations to the legislature by February 1990 on the development of a new alternative licensure category for rural medical facilities (*302*).

South Dakota—The South Dakota Office of Rural Health, established in 1988, has two offices: one within the State Department of Health, and the other within the University of South Dakota School of Medicine (*627*). The Office was created by a memorandum of agreement between the medical school and the Department of Health, and it receives funding through a State legislative appropriation. Additional funding is gained through the School of Medicine. Activities of the ORH include:

- recruitment and retention of rural health professionals;
- technical assistance to help rural providers establish and maintain rural practices, and to help rural facilities apply for Rural Health Clinic certification under Medicare and Medicaid;
- health care needs assessments for rural areas; and
- dissemination of rural health information to medical students and medical residents (*627*).

reported that they had developed task forces, most commonly through administrative action of the Governor's office. Table 4-13 provides some examples of State task forces and committees and their responsibilities. The experiences of New York and Texas, described below, illustrate the role of task forces in catalyzing legislative and administrative action on rural health issues.

New York

Both the State legislature and the State Department of Health have recently examined rural health care issues in New York. In spring 1987, the Legislative Commission on Rural Resources held a symposium to assess the rural health care system and to design a framework to ensure access to rural health for the next 20 years. The symposium identified three major areas needing legislative and administrative attention:

- need for regulatory flexibility (e.g., granting rural hospitals a waiver from the CON process),
- need for reimbursement and financing mechanisms that more accurately reflect costs and improve access to capital, and

Table 4-13—Four Examples of State Task Forces and Committees Created To Address Rural Health Issues

State	Name of task force/committee	Authority	Responsibilities
New York	Task Force on Rural Health Strategies	Administrative (1987)	• Examine rural health care issues and problems statewide • Develop strategies and recommendations for administrative or legislative action
Washington	Washington Rural Health Care Commission	Legislative (1988)	• Review existing laws and regulations governing rural health services and identify barriers they create to efficient and effective delivery • Review issues that affect the current delivery of rural health care • Establish operational standards for a model alternative rural health facility and review the impact of existing government payment policies on such facilities
Alabama	Alabama Rural Health Task Force	Legislative (1989)	• Study and recommend to the legislature ways to address the problem of declining availability of obstetrical services in rural areas of the State • Recommend ways to improve the financial health of rural hospitals delivering obstetrical care through better management practices, modified scopes of services, and other mechanisms
Texas	Special Task Force on Rural Health Care Delivery	Legislative (1987)	• Define minimally acceptable levels of medical care for the State's rural areas, focusing on specific issues in emergency medical transportation, hospital care, emergency and outpatient care, and ancillary services

SOURCE: Office of Technology Assessment, 1990. Data from: New York State Department of Health, Toward Improving Rural Health Care: A Report of the Task Force on Rural Health Strategies (Albany, NY: New York State Department of Health, November 1987); State of Texas, Special Task Force on Rural Health Care Delivery, Final Report and Recommendations to the Governor (Austin, TX: State of Texas, February 1989); J. Coleman, West Alabama Health Services, Eutaw, AL, personal communication, July 1989; Washington Rural Health Care Commission, A Report to the Legislature on Rural Health Care in the State of Washington (Olympia, WA: Washington Rural Health Care Commission, January 1989).

- need for coordination and community planning among State and local rural programs.

Other recommendations included increased State-level technical assistance to local providers in grant writing and services coordination.

A subsequent legislative commission found that many of New York's rural hospitals and nursing homes suffered from inadequate access to financing for major projects. The Commission recommended that information resources be enhanced, the CON review process for capital purchases be modified, and State-level capital financing programs be made more accessible to rural providers (*439,440*).

A State Department of Health task force created specifically to examine State rural health care issues and problems issued a report in 1987. Its recommendations included:

- improving migrant health services,
- promoting rural health networks,
- improving the supply and distribution of health personnel, and
- establishing a rural health council (*437*).

The findings and recommendations of these groups led to direct legislative and administrative action, including the establishment of two new statewide rural health entities. The Rural Health Council, which includes providers, consumers and elected officials who act as advisers, now oversees State-funded rural health programs and offers ideas on possible new initiatives. The Office of Rural Affairs works with State agencies to monitor new legislative programs affecting rural areas (*391*). The State has recently authorized appropriations for:

- small grants to providers in underserved areas who coordinate with other facilities to combine needed services and procedures;

- grants to rural hospitals for service diversification, expansion, conversion, or the development of various affiliations and alliances;
- a development program that helps rural providers plan and implement projects to improve existing primary care services or develop other essential services such as emergency medical care, rehabilitation, and long-term care;
- a program to expand primary care services in underserved rural areas and to make primary care accessible to medically indigent populations; and
- a swing-bed demonstration program for rural community hospitals (*438*).

Texas

In 1987, the Texas Legislature created a special task force to define minimally acceptable levels of rural medical care. Work groups addressed specific issues of emergency medical transportation, hospital care, emergency and outpatient care, and ancillary services. The task force's final report (issued in February 1989) described a crisis in the State's rural health delivery system, citing several hospital closures, a curtailment of obstetric services, and shortages of health personnel. The report's recommendations addressed trauma care, Medicaid reimbursement, capital finance programs for rural hospitals, and hospital diversification. The report also recommended creating a statewide center for rural health initiatives to promote integration of rural health programs and services into an overall system of care (*574*).

In 1989, the State legislature authorized the creation of a Center for Rural Health Initiatives within the State Department of Health to coordinate and develop rural health services in the State. The legislation also:

- established a Medicaid swing-bed program;
- allowed full implementation of the Federal Rural Health Clinics Act (Public Law 95-210) in the State;
- directed expansion of rural medical student and residency training programs;
- required hospitals to implement patient transfer agreements to prevent "reverse dumping" of indigent patients; and
- indemnified physicians at least 10 percent of whose patients were on Federal or State medical assistance and mandated a malpractice insurance premium discount for such physicians (*597*).

Other State Initiatives

Initiatives in other States include a wide variety of programs aimed at coordinating and augmenting rural health care services. For example, some States are considering creating new health facility categories to enable small, struggling rural hospitals to restructure and narrow their scope of services (see ch. 8). Other examples are:

- *In Arkansas*, the State legislature recently appropriated new funds ($225,000) to an existing rural medical clinic loan fund for small communities that lack adequate medical services (*54*).
- *In Illinois*, the Department of Public Health recently issued a report on participation in the Rural Health Clinics program (see ch. 3). The report provided background on this program, identified areas where clinics would qualify for participation, discussed clinic certification procedures and reimbursement, examined the impact of certification, and outlined a plan for disseminating information on the program to rural providers (*286*).
- *In Iowa*, provisions of an extensive law passed in 1989 include:
  —creation of State Office of Rural Health (see box 4-A);
  —technical assistance by the Department of Public Health to help coordinate development of outreach centers for pregnant women and infants and children;
  —pilot programs in rural hospitals to provide primary and preventive health services to the medically indigent;
  —expansion of agricultural health and safety programs;
  —expansion of mental health outreach services, homemaker/health aide programs, and public health nursing programs; and
  —authorization of the use of an existing tax levy for rural hospital operation and maintenance (*302*).
- *In Tennessee*, the Community Health Agency Act of 1989 authorized and appropriated $6 million for eight rural and four urban community health planning agencies. Each planning agency must define and help develop a regional

system of coordinated primary care services accessible to all area residents (*594*).

SUMMARY AND CONCLUSIONS

States have both a high level of involvement in rural health activities and a significant degree of dependence on Federal funding for those activities (table 4-3). The level of effort States are devoting to rural health issues varies dramatically and does not necessarily correspond with States' degree of ruralness or perceived level of need. Differences between "more rural" and "less rural" States emerged primarily in the States' perceptions of major rural health care problems (table 4-10) rather than in their level of rural health-related activity. While some States boast a variety of successful initiatives and programs, other States—and, notably, some States in which a large proportion of the population is rural—have not mobilized to address their particular rural health problems. These States might especially benefit from Federal guidance, encouragement, and continued support.

Because the OTA survey did not attempt to describe the degree to which reported activities were felt to have been successful by the States, or the sources of funding for specific activities, it is impossible to distinguish clearly between the Federal and the State roles. A study conducted by the Federal Bureau of Health Professions in 1986 found that State support for health professions distribution programs increased significantly during the first half of the 1980s (*685*).[19] However, OTA's survey found that States still rely heavily on Federal funds to support a variety of existing rural health activities.

Most States identified provider recruitment and placement issues as high priorities, but most did not have programs (e.g., service-contingent loan forgiveness/repayment and scholarship programs) commonly believed to be most effective in addressing these issues. Because scholarships and loans are costly, such programs would probably require significant capital if they were to have a pronounced and prolonged impact.

When asked what activities or programs they would like to see in the future to address rural health issues, respondents to this survey often suggested an active Federal role. Activities such as the creation of State ORHs; development of rural health policies, plans, and standards; improvement of health insurance coverage; Medicaid expansion or reform; rural health systems coordination and network development; loan repayment or forgiveness and scholarship programs; and availability of rural-oriented health professions education were frequently mentioned. A Federal role is possible, if not implicit, in all of these initiatives.

Recent State legislative activity on rural health issues has ranged from energetic to nonexistent. Active States can provide valuable models for less active States, and certain State programs could serve as models for broader Federal initiatives. OTA's survey of State rural health activities reveals some significant regional and State differences that may be useful in targeting Federal resources.

State ORHs provide focal points for State rural health activities and programs and can improve the development and coordination of local, State, and Federal efforts. The degree to which State agencies can effectively direct such offices, however, will vary depending on financial and organizational factors. The distribution and organization of current State ORHs suggests that any Federal support for the creation or operation of State ORHs should be flexible with regard to location of the ORH within the State. Some States currently without ORHs might consider alternatives to the State agency-based model (e.g., university-based ORHs like those in Arizona and North Dakota). South Dakota and Georgia are examples of States whose ORHs are based both within a State agency and a university.

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[19] This study, as well as State efforts in health personnel recruitment and retention, are discussed in greater detail in ch. 13.

Part III

Availability of Rural Health Services

Chapter 5

Problems and Trends in Rural Health Services

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Chapter 5

Problems and Trends in Rural Health Services

INTRODUCTION

Recent changes in the delivery of rural[1] health services have created both problems and opportunities for rural communities and their health care facilities. In particular, significant changes in the demand for the services of rural hospitals and primary care centers threaten their operational stability and thus the ability of some rural residents to obtain basic health care.

This chapter begins by describing trends in operating and service characteristics of rural acute- and primary-care facilities, particularly regarding utilization and competition for patients. It then examines trends affecting the financial condition and viability of rural hospitals and community health centers (CHCs)[2], and the impact of the growing number of health care facility closures in rural areas. Finally, it examines what is known about the nature of travel by rural residents outside their communities for health care and the geographical limitations to accessible care in rural areas.

Most of the data documenting changes in hospital operations are from 1984 through 1987 and were supplied by the American Hospital Association (AHA). Additional AHA data also enabled a more in-depth analysis of hospital operations in 1987. Most data on CHCs cover trends from 1984 through 1988, and most were obtained from the Bureau of Health Care Delivery and Assistance of the U.S. Public Health Service.

Local health departments (LHDs) and private group practices are also important sources of basic rural health services. No information on these facilities is presented in this chapter, however, because no national data are available on their numbers, scope of services, or other basic operating characteristics.

HOSPITAL CHARACTERISTICS

Number of Community Hospitals

In recent years, the number of community hospitals in both rural and urban areas has decreased slightly. As shown in table 5-1, the number of rural hospitals declined 5.5 percent from 1984 to 1988, or about twice as much as did the number of urban hospitals. Over 70,000 hospital beds were eliminated during this period through the downsizing or closure of hospitals. Only 29 percent of the eliminated beds were in rural hospitals, but because rural hospitals are smaller in size (i.e., have fewer beds) than urban ones, the proportion of beds eliminated was actually higher in rural than in urban areas.[3] (In 1988, rural hospitals made up about 46 percent of the 5,533 community hospitals, but they housed only 22 percent of the total licensed beds (*35*).)

In 1987, nearly three-fourths of rural hospitals had fewer than 100 beds (and about one-third housed fewer than 50 beds)(table 5-2). By comparison, only 23 percent of urban hospitals had fewer than 100 beds. From 1984 to 1987, the number of large rural hospitals declined, while the number of rural hospitals with fewer than 50 beds actually increased (*30*).

Hospitals are not evenly distributed throughout rural areas of the country. Nearly two-thirds of rural hospitals are located in the four central Census regions of the United States;[4] over 20 percent are located in six Midwestern States (figure 5-1) (*382*). About 11 percent of rural hospitals are in frontier areas (counties with six or fewer persons per square mile). In 1987, there were 277 hospitals located in 387 frontier counties (see app. C).

Hospital Ownership

Nearly one-half (48 percent) of all rural community hospitals in 1987 were privately owned, nonprofit facilities (figure 5-2). State and local govern-

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[1] Unless otherwise noted, "rural" corresponds to nonmetropolitan areas—all areas outside of designated metropolitan counties (see ch. 2).

[2] "CHCs" in this chapter includes migrant health centers.

[3] The number of hospital beds refers to total facility beds (both acute care and other) set up and staffed for use. A hospital's number of staffed beds is typically fewer than the total number of beds the hospital is licensed to operate by the State.

[4] See app. F for a description of Census regions.

Table 5-1—Community Hospital[a] Size and Utilization, by Metropolitan/Nonmetropolitan Status, 1984-88

	1984	1985	1986	1987	1988	Percent change 1984-88
Number of hospitals						
Nonmetro	2,696	2,674	2,638	2,599	2,549	-5.5
Metro	3,063	3,058	3,040	3,012	2,984	-2.6
Number of beds						
Nonmetro	232,746	228,871	223,422	216,921	212,624	-8.6
Metro	784,311	771,807	754,953	741,391	734,073	-6.4
Average number of beds/hospital						
Nonmetro	86	86	85	83	83	-3.5
Metro	256	252	248	246	246	-3.9
Admissions (in thousands)						
Nonmetro	7,450	6,826	6,360	6,000	5,882	-21.0
Metro	27,706	26,622	26,019	25,601	25,571	-7.7
Inpatient days (in thousands)						
Nonmetro	51,651	46,746	44,920	43,754	43,313	-16.1
Metro	204,952	189,873	184,527	183,261	183,562	-10.4
Occupancy rate (percent)						
Nonmetro	60.7	56.0	55.1	55.3	55.7	-8.2
Metro	71.5	67.5	67.0	67.7	68.4	-4.3
Average length of stay (days)						
Nonmetro	6.9	6.8	7.1	7.3	7.4	7.2
Metro	7.4	7.1	7.1	7.2	7.2	-2.7

[a] Community hospitals defined here as all non-Federal, short-term general and other special service hospitals.

[b] Occupancy rates are based on the hospital's total number of beds (both acute care and other).

SOURCE: American Hospital Association, Hospital Statistics (Chicago, IL: AHA, 1985-89 eds.).

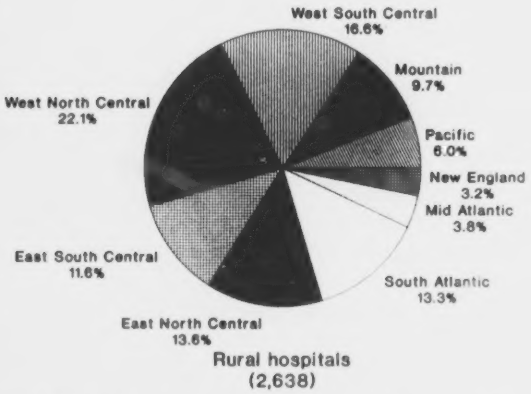
Table 5-2—Number of Community Hospitals[a] by Metropolitan/Nonmetropolitan Status and Bed Size, 1984-87

Bed size	1984	1985	1986	1987	Percent change 1984-87
Nonmetro hospitals	2,696	2,674	2,638	2,599	-3.6
6-24 beds	182	177	175	192	5.5
25-49	799	800	809	805	0.8
50-99	932	919	908	893	-4.2
100-199	606	610	576	536	-11.5
200-299	131	125	130	135	3.0
300-399	34	31	30	28	-17.6
400-499	6	6	5	5	-16.7
500 or more beds	6	6	5	5	-16.7
Metro hospitals	3,063	3,058	3,040	3,012	-1.7
6-24 beds	33	31	36	38	15.1
25-49	188	182	184	174	-7.4
50-99	476	480	468	471	-1.0
100-199	772	797	806	811	5.0
200-299	603	614	622	618	2.5
300-399	402	408	407	397	-1.3
400-499	263	233	211	211	-19.8
500 or more beds	326	313	306	292	-10.4

[a] Community hospitals defined here as all non-Federal, short-term general and other special service hospitals.

SOURCE: American Hospital Association, Chicago, IL, unpublished data from the Annual Survey of Hospitals, 1984-87.

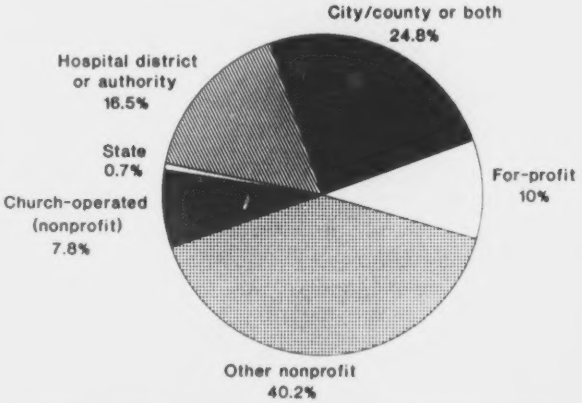
Figure 5-1—Nonmetropolitan Hospitals by Census Region,[a] 1986



[a]As defined by the U.S. Census Bureau. See app. F for geographic display of regions.

SOURCE: Office of Technology Assessment, 1990. Data from M. Merlis, "Rural Hospitals," U.S. Congress, Congressional Research Service, Washington, DC: no. 89-296 EPW, May 2, 1989.

Figure 5-2—Ownership of Nonmetropolitan Community Hospitals,[a] 1987



[a]Community hospitals defined here as all non-Federal, short-stay, nonspecialty hospitals (see app. C).

SOURCE: Office of Technology Assessment, 1990. Data from American Hospital Association's 1987 Annual Survey of Hospitals.

ment authorities owned another 42 percent, and for-profit investors the remaining 10 percent (*625*).

A rural hospital's type of ownership is related to its size. Hospitals with 100 or more beds were predominantly private nonprofit facilities, whereas over one-half of hospitals with fewer than 50 beds were owned by State and local governments (*625*). The large number of rural community hospitals under local government authority probably indicates the importance of community-subsidized support for these facilities.

Type of ownership also varies by the location and type of rural hospital. A majority of hospitals in frontier areas (56 percent) were government-owned in 1987, but just 21 percent of rural referral centers (RRCs)[5] were government-owned. Conversely, 71 percent of referral centers *v.* only 42 percent of frontier hospitals were privately owned, nonprofit facilities. The ownership profile of Medicare-designated sole community hospitals (SCHs) (see ch. 3) was comparable to that for rural hospitals in general. Just 3 percent of both frontier hospitals and SCHs had for-profit owners; RRCs had a slightly higher proportion (7 percent) (*625*).

In 1987, about 19 percent of rural hospitals were contract-managed (see ch. 6), compared with 8 percent of urban hospitals. The number of rural facilities under contract management increased 15 percent from 1984 to 1987, suggesting a change in traditional forms of governance for many hospitals (e.g., greater involvement in hospital operations by interests outside the community) (*30*).

Hospital Scope of Services

There are few in-depth analyses of the nature of medical services offered by rural community hospitals, or their dependence on hospital size, location, and other factors. Shortell, in a national study of hospitals in multihospital systems[6] from 1984 to 1987, found that rural hospitals offered fewer services (average 17) than urban hospitals (average 22). However, rural hospitals were found to provide a variety of services (particularly outside the hospital) targeted to the elderly (*418*). Much of the difference in the scope of services of rural and urban hospitals appears to be due to smaller rural hospital size. A study of hospitals in 13 geographically diverse States found that rural hospitals as a group offered 30 percent fewer services than did urban hospitals. However, no significant differences were found in the number of services between rural and urban hospitals of the same size (*590*).

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[5] Rural referral centers are described in ch. 3.

[6] An in-depth discussion of multihospital systems in rural areas is presented in ch. 6.

In a recent study of the service mix of both rural and urban hospitals in 1985, the provision of specific services was linked to local demand, provider capabilities, and mission or strategy of the hospital. For example:

- Rural hospitals provided more long-term care services than did urban hospitals.
- Emergency and obstetric services were present in nearly every rural hospital.
- Occupational therapy was most likely to be delivered by smaller urban hospitals that could target specific needs of the market.
- Most hospitals with fewer than 50 beds did not provide cardiac intensive care, an expensive specialty service.

Long-term care services were particularly prominent in smaller rural hospitals, where the hospital-based nursing home often had three to five times as many patients as the acute-care part of the hospital (*236*).

Rural hospitals generally provide less highly specialized care and perform fewer complex procedures than do urban hospitals. Number of hospital beds and the ability to obtain a regular surgeon appear to be critical factors in whether rural hospitals provide inpatient surgery. Hart et al. found that procedures in hospitals with fewer than 100 beds were generally common ones of relatively low risk and complexity. Rural hospitals with fewer than 25 beds provided very little inpatient surgery; 79 percent of these hospitals performed fewer than 100 annual inpatient operating room surgeries. By comparison, over two-thirds of all rural hospitals with at least 50 beds performed more than 100 surgeries a year (*236*).

Common Acute-Care Services

Table 5-3 lists the most common services of community hospitals with fewer than 300 beds in 1987 (*625*). The likelihood that such hospitals provide any of these services increases as the number of beds in the hospital (bed size) increases. Nearly all rural and urban hospitals (over 90 percent) of this size provide an emergency department, diagnostic x-ray facility, and ambulatory surgery. The remaining common services, however, are as much as 40 percent more likely to be provided in urban than in rural hospitals of a given size (e.g., 93 percent of urban hospitals with fewer than 300 beds have an ultrasound unit, compared with 77 percent of rural hospitals in this group).

Complex Acute-Care Services

The proportion of hospitals offering intensive care services differs by location and decreases by bed size (table 5-4). Although 62 percent of all rural hospitals with fewer than 300 beds have medical/surgical intensive care units (compared with 88 percent of urban hospitals of the same size), just 19 percent of rural hospitals with fewer than 25 beds have this service. Only a small percentage of all hospitals with fewer than 300 beds offer cardiac or neonatal intensive care—services commonly reserved for larger urban referral centers (*625*).

Other new and complex services are also found less often in small than in large hospitals and in rural than in urban hospitals of a given size. In 1987, for example, rural hospitals were generally less likely to provide in-house computed tomography (CT) scanning, nuclear magnetic resonance imaging (MRI), cardiac catheterization laboratory services, organ transplants, open heart surgery, and extracorporeal shock wave lithotripsy (ESWL) for kidney stones (table 5-4) (*625*).

Mobile settings may make some expensive technology more accessible to small and isolated hospitals. These facilities can then have periodic access to on-site technology without needing to generate the patient volume for its full-time support. MRI and ESWL are particularly attractive candidates for shared use among small hospitals. An estimated 28 percent of MRI scanners in 1987 were mobile units, and manufacturers estimate that in 1990 approximately one-third of ESWL equipment operate in mobile settings (*489,542*).

No studies have directly compared rates of technology adoption in urban and rural hospitals, but small and nonteaching hospitals have been shown to adopt specific expensive and complex new technologies less rapidly than do other hospitals. One study, for example, found that large hospitals (250 or more beds) were much more likely than smaller hospitals to have adopted certain sophisticated laboratory equipment by 1980 (*707*). The study also found that the increase between 1975 and 1980 in the adoption of endoscopes was higher for small nonteaching hospitals, suggesting that these hospitals adopted the technology later than did other hospitals (which

Table 5-3—Most Common Selected Services[a] Available in Nonmetropolitan Community Hospitals[b] With Fewer Than 300 Beds, by Bed Size, 1987

Services	Percent of hospitals offering:						
	Nonmetro hospitals						Metro hospitals
	6-24 beds	25-49 beds	50-99 beds	100-199 beds	200-299 beds	All < 300 beds	All < 300 beds
Emergency department	95	98	99	98	98	98	96
Diagnostic X-ray facility	95	96	97	98	100	97	99
Ambulatory surgery	77	91	95	97	99	93	98
Respiratory therapy	67	84	91	96	100	89	96
Physical therapy	50	70	67	93	98	81	92
Ultrasound facility	39	65	83	93	99	77	93
Blood bank	45	50	67	76	87	63	76
Patient education	47	49	63	75	83	61	79
Organized outpatient service	55	53	60	64	76	59	73
Community health promotion	39	39	54	66	78	52	73
Chronic obstructive pulmonary services	39	43	51	62	77	51	72
Birthing room	28	33	52	70	75	49	54

[a] Services are those hospital-based only.

[b] Community hospitals defined here as all non-Federal, short-stay, nonspecialty hospitals (see app. C).

SOURCE: Office of Technology Assessment, 1990. Data from American Hospital Association's 1987 Annual Survey of Hospitals.

Table 5-4—Intensive Care Capability and Selected Diagnostic and Treatment Services[a] Available in Community Hospitals[b], by Hospital Location and Bed Size, 1987

Service	Percent of hospitals offering:									
	Nonmetro					Metro				
	6-24 beds	25-49 beds	50-99 beds	100-199 beds	200-299 beds	6-24 beds	25-49 beds	50-99 beds	100-199 beds	200-299 beds
Intensive care (IC) capability										
Medical/surgical IC beds	18.6	43.6	69.1	83.8	93.9	4.5	56.6	83.7	91.1	95.8
Cardiac IC beds	3.3	4.1	6.3	7.4	34.1	0.0	3.3	3.3	14.6	39.2
Neonatal IC beds	0.0	0.0	0.7	4.4	12.1	0.0	0.0	1.1	5.1	15.1
Selected technologies										
Computed tomography scanner	7.1	14.1	41.3	69.6	90.2	0.0	24.6	52.6	79.2	93.2
Nuclear magnetic resonance imaging	1.6	0.7	1.6	3.8	7.6	0.0	2.5	4.1	6.5	12.6
Cardiac catheterization laboratory	0.0	0.3	0.8	6.8	18.2	0.0	0.8	1.9	16.2	42.2
Organ transplant capability	0.0	0.1	0.6	1.0	1.5	4.5	0.8	0.3	1.6	6.0
Open heart surgery	0.0	0.0	0.1	1.1	4.5	0.0	0.8	0.8	5.5	22.4
Extracorporeal shock-wave lithotripter	0.0	0.0	0.7	2.1	1.5	0.0	0.8	0.6	3.2	5.3

[a] Includes hospital-based services only.

[b] Community hospitals defined here as all non-Federal, short-stay, nonspecialty hospitals (see app. C).

SOURCE: Office of Technology Assessment, 1990. Data from American Hospital Association's 1987 Annual Survey of Hospitals.

Table 5-5—Long-Term Care Services Provided in Nonmetropolitan Community Hospitals[a], 1987

	Hospitals having:			
	Separate long-term care unit		Skilled nursing facility unit	
Bed size	Number	Percent of total	Number	Percent of total
6-24 beds	6	3	4	2
25-49	74	10	58	8
50-99	268	32	211	25
100-199	211	40	196	37
200-299	45	34	42	32
300 or more	11	30	8	22
Total	615	25	519	21
Sole community hospitals[b]	85	30	73	25
Frontier hospitals	103	40	77	30
Rural referral centers[b]	32	15	34	16

NOTE: Numbers of hospitals with skilled nursing facility units are probably included in the numbers of hospitals with separate long-term care units.

[a] Community hospitals defined here as all non-Federal, short-stay, nonspecialty hospitals (see app. C).

[b] As defined for Medicare purposes (see app. C).

SOURCE: Office of Technology Assessment, 1990. Data from American Hospital Association's 1987 Annual Survey of Hospitals.

presumably were closer to market saturation in 1975) (*707*).

Long-term Care Services

For many rural hospitals, involvement in long-term care has become as crucial to their livelihood as the more traditional acute inpatient services. As shown in table 5-5, 25 percent of all rural community hospitals in 1987 had some form of a separate long-term care unit. Rural hospitals are much more likely to have separate long-term care units if they are relatively large. Size is not the only important factor, however. Only about 15 percent of the larger rural referral centers have separate long-term care units, while 40 percent of the typically smaller hospitals in frontier areas have such a unit (*625*). These figures suggest that hospitals with highly utilized and profitable acute-care services have a lower tendency to provide long-term care services.

Long-term care is a major service of those hospitals providing it. In the 25 percent of rural hospitals that have a separate long-term care unit, beds in that unit make up, on average, nearly one-half of the total hospital beds. Although only 6 percent of all admissions to these hospitals were of a long-term nature, nearly two-thirds of inpatient days were long-term care related (*625*).

The most common type of long-term care unit in rural hospitals appears to be the separate skilled nursing facility (SNF). About 21 percent of all rural hospitals have "distinct part" SNFs (table 5-5) (*625*). Swing bed care—whereby a certain proportion of hospital beds may "swing" between acute and skilled nursing or intermediate long-term care as needed—is another common form of long-term care provided in rural hospitals (see ch. 6).

Size of Hospital Medical Staffs

Rural hospitals have substantially fewer medical staff physicians than urban community hospitals of comparable size (table 5-6). As expected, among rural hospitals, larger hospitals have considerably more staff physicians.[7] However, not all staff differences can be explained by hospital size. Hospitals in frontier areas, for example, have substantially fewer physician staff than all comparably sized rural hospitals. This may reflect differences in the range of services and technology available, lower admissions, and greater difficulty attracting and retaining physicians in more isolated areas (*625*).

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[7] See ch. 10 for differences in the number of staff physicians by specialty.

Table 5-6—Total Medical Staff in Community Hospitals[a] With Fewer Than 300 Beds, by Hospital Location, Type, and Bed Size, 1987

Hospital type	Mean number of total hospital medical staff by bed size category: 6-24	25-49	50-99	100-199	200-299	All hospitals under 300 beds
Metro	17.7	32.8	56.7	115.0	184.5	116.0
Nonmetro	6.4	10.9	21.2	42.5	77.6	24.2
Sole community hospitals[b]	6.2	10.1	20.4	45.3	80.2	21.5
Frontier hospitals	4.3	6.3	11.9	22.1	9.0[c]	8.3

[a] Community hospitals defined here as all non-Federal short-stay, nonspecialty hospitals (see app. C).

[b] As defined for Medicare purposes (see app. C).

[c] Represents only one hospital.

SOURCE: Office of Technology Assessment, 1990. Data from the American Hospital Association's 1987 Annual Survey of Hospitals.

HOSPITAL UTILIZATION AND COMPETITION

Hospital Inpatient Utilization

Inpatient service utilization in both rural and urban community hospitals has been in steady decline since the early 1980s (see table 5-1), but declines have been greater in rural hospitals. From 1984 to 1988, admissions to rural hospitals dropped about two and one-half times as much as admissions to urban hospitals. While urban hospital occupancy rates dropped to about 68 percent in 1988, occupancy levels for rural hospitals declined nearly twice as much to a low of 55 percent,[8] despite their relatively greater rate of bed elimination and a 7 percent increase in the average length of stay (to 7.4 days) in rural hospitals. (Longer lengths of stay enhance average occupancy but not necessarily the hospital's financial condition. Medicare, for example, usually pays a fixed rate per patient discharged, regardless of the patient's length of stay.) Although they made up 46 percent of community hospitals in 1988, rural hospitals accounted for only about 19 percent of all hospital admissions and inpatient days (*35*).

Within rural hospitals, declines in admissions and inpatient days were somewhat greater among large than among small hospitals (table 5-7). This trend is the reverse of that for urban hospitals (where declines were generally greatest among those hospitals with fewer than 100 beds) (*30*).

By 1987, these trends had resulted in substantial differences in inpatient utilization among types of rural hospitals (table 5-8). Compared with rural hospitals in general, for example, hospitals in frontier areas (two-thirds of which have fewer than 50 beds) had less than one-third as many admissions per hospital. Frontier hospitals also had lower average occupancy rates, a lower proportion of Medicare inpatient days, and a higher proportion of Medicaid days. SCHs had similar but less pronounced characteristics. RRCs, on the other hand, were not only larger but had higher occupancy

Table 5-7—Changes in Utilization of Community Hospitals[a] by Hospital Location and Bed Size, 1984-87

Bed size	Percent change, 1984-87: Admissions	Inpatient days
Nonmetro	-19.5	-15.3
6-24	-17.9	-13.1
25-49	-16.1	-12.0
50-99	-18.2	-13.6
100-199	-24.4	-19.1
200-299	-9.7	-8.1
300 or more	-23.8	-20.1
Metro	-7.6	-10.6
6-24	-9.9	-8.2
25-49	-14.9	-14.8
50-99	-13.3	-13.1
100-199	-1.6	-3.1
200-299	-2.3	-3.9
300 or more	-10.2	-13.8

[a] Community hospitals defined here as all non-Federal, short-term general and other special service hospitals.

SOURCE: American Hospital Association, Chicago, IL, unpublished data from the Annual Survey of Hospitals, 1984-87.

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[8] Occupancy rates here are based on the hospital's total number of beds (both acute care and other).

Table 5-8—Utilization of Nonmetropolitan Community Hospitals[a] by Hospital Type and Bed Size, 1987

Hospital type	Number of hospitals	Admissions per hospital	Inpatient days per hospital: Total	Inpatient days per hospital: Percent Medicare	Inpatient days per hospital: Percent Medicaid	Occupancy rate (percent)[b]
Total nonmetro						
6-24 beds	200	418	2,265	45	11	31
25-49	817	918	5,241	47	12	38
50-99	893	1,854	13,520	41	18	51
100-199	539	3,842	29,749	39	20	59
200-299	135	7,325	54,516	43	15	64
300 or more	37	12,603	97,143	41	14	70
Total	2,621	2,295	16,710	43	16	48
Sole community[c]						
6-24 beds	38	390	2,174	38	15	31
25-49	111	892	5,616	40	17	42
50-99	97	1,935	13,881	38	19	53
100-199	50	4,311	30,015	39	20	60
200-299	13	7,144	55,048	42	17	65
300 or more	4	11,600	85,878	47	17	65
Total	313	2,097	14,736	39	18	48
Frontier						
6-24 beds	55	333	2,010	39	13	29
25-49	127	641	4,827	38	16	38
50-99	81	980	14,918	24	28	62
100-199	13	1,572	31,803	18	37	70
200-299	1	1,270	76,727	8	49	90
300 or more	0	0	0	0	0	0
Total	277	725	8,744	33	20	45
Rural referral centers[c]	217	7,545	48,151	48	9	61

[a] Community hospitals defined here as all non-Federal, short-stay, nonspecialty hospitals (see app. C).
[b] Occupancy rates are based on the hospital's total number of beds (both acute care and other).
[c] As defined for Medicare purposes (see app. C).

SOURCE: Office of Technology Assessment, 1990. Data from American Hospital Association's 1987 Annual Survey of Hospitals.

levels, a higher proportion of Medicare days, and a lower proportion of Medicaid days than did other rural hospitals. Occupancy rates for all rural hospitals declined as bed size decreased, ranging from 70 percent for hospitals with 300 or more beds to only 31 percent for hospitals with fewer than 25 beds (*625*).[9]

Excessive bed supply is one potential reason for the recent decline in hospital inpatient utilization. As noted in box 5-A, the Hill-Burton program (Public Law 79-725) successfully increased the supply of hospital beds, particularly in low-income rural areas. By 1986, the ratio of community hospital beds to population was about 4 beds per 1,000 persons in both urban and rural areas (table 5-10) (figure 5-3), and in 14 States, ratios were actually higher in rural areas (*382*). As a legacy of the massive hospital construction resulting from the Hill-Burton era, many small rural hospitals lie within reasonable driving distance of other hospitals. One study, for example, found that 84 percent of all rural hospitals were less than 30 road miles from another hospital (*589*). A relatively high bed-to-population ratio in rural areas of sparse population may sometimes be justified by the need for remote hospitals to staff enough beds to handle unexpected fluctuations in inpatient demand caused by disasters and major accidents. However, this rationale cannot explain

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[9] In general, occupancy rates for acute-care beds in rural hospitals were smaller than total bed occupancy levels. Acute care bed occupancy also declined as bed size decreased (*625*).

Box 5-A—The Hill-Burton Program

Use and Distribution of Funds

Congress enacted the Hospital Survey and Construction (''Hill-Burton'') Act (Public Law 79-725) in 1946 in response to a widely perceived shortage of hospital beds, particularly in rural areas. States were eligible to receive Federal matching grants to assist in surveying State needs; developing statewide plans for constructing nonprofit, nongovernmental hospitals; and constructing the facilities. Amendments to the Act in 1964 (Public Law 88-443) made construction funds available for the modernization or replacement of facilities, set minimum structural and design standards affecting safety and efficiency of operations, required funded hospitals and other facilities to provide free care to persons unable to pay, and authorized studies to demonstrate the coordinated use of hospital and other health care facilities. In 1970, a loan guarantee component was added to Hill-Burton whereby the Federal Government would cover a portion of the interest cost and guarantee payment of the principal of loans to funded facilities (*335*).

The legislation required State plans to abide by Federal standards of adequacy in defining bed need. Until 1965, such standards were simply defined as the ratio of beds to population—the number of general beds should equal but not exceed 4.5 beds for every 1,000 residents, except in sparsely populated areas. Critics argued that such a standard was arbitrary, as demand for hospital care could vary in areas of similar population (*335*).

Hill-Burton sought to equalize the distribution of hospital facilities between rural and urban areas. Above a minimum amount alloted to every State, the program allocated funds based on State population size and per capita income. Per capita income entered the formula twice (both as a measure of a State's bed and financial need) to give less affluent as well as more rural States an advantage. Within States, rural areas again were to be given priority for funds (this provision was eliminated in 1970) (*131,335*).

By 1974, when the Hill-Burton program was abolished, over 10,700 projects had been funded; about one-third were for new facilities and the remainder for modernization. The total cost of the projects was $12.8 billion, of which the Federal Government contributed over $3.7 billion. Over one-half of the funded projects were for new or modernized short-term hospitals (5,787), representing 71 percent of the total amount of Hill-Burton funds. About 30 percent of all hospitals built between 1949 and 1962 used Hill-Burton monies (*335*).

Impact on Rural Areas

As intended, Hill-Burton funds for short-term hospital projects were concentrated in less populated areas (table 5-9). About 75 percent of all projects and 67 percent of total Hill-Burton funds between 1948 and 1971 were devoted to communities with fewer than 50,000 residents. Nearly 44 percent of the projects were in communities of less than 10,000 residents.

Little is known about the impact of the program in rural areas of particular States. One study in Minnesota found substantial differences in the allocation of Hill-Burton funds between urban and rural areas of the State from 1950 to 1973. Average per capita funds for hospitals in rural counties were one-third greater than funds for hospitals in urban counties; rural counties received almost twice as many general hospital beds per 100,000 residents under the program as did urban counties. However, 13 of the 78 rural counties received no Hill-Burton support. Also, of those rural counties obtaining support, the most rural and economically disadvantaged did not receive the expected higher proportion of program funds. Some of these areas may have had insufficient resources to support a new or modernized facility (*264*).

The Hill-Burton program did substantially increase the number of short-term hospital beds. From 1947 to 1970, short-term hospital beds per 1,000 people increased from 3.3 to 4.3 in the United States (*335*). By 1986, the ratio of community hospital beds in both rural and urban areas was about 4 beds per 1,000 people, although variation among and within individual States was substantial (see table 5-10 and figure 5-3). In 14 States, bed-to-population ratios were actually higher in rural than in urban areas (*382*). The Hill-Burton program had no authority to limit bed supply. By the 1970s, it was widely perceived that Hill-Burton had actually contributed to an oversupply of general hospital beds in many areas of the country.

Although it had a substantial effect on bed supply, the Hill-Burton program did not significantly affect the redistribution of physicians (*264*). Also, there is little indication that Hill-Burton's attempt to demonstrate the coordinated use of hospital and other health care facilities fostered the integration and regionalization of health services in rural communities.

Table 5-9—Distribution of Hill-Burton Short-Term Hospital Projects and Population, by Community Size, 1948-71

Community size (1960)	Total percent of projects	Percent of total Hill-Burton funds	Percent of 1960 U.S. population
Fewer than 10,000	43.4	28.9	45.7
10,000-24,999	19.8	22.0	9.8
25,000-49,999	11.6	16.3	8.3
50,000 and more	25.1	32.9	36.2
Total	100.0	100.0	100.0

NOTE: Totals may not add to 100 percent due to rounding.

SOURCE: J. Lave and L. Lave, The Hospital Construction Act: An Evaluation of the Hill-Burton Program, 1948-1973 (Washington, DC: The American Enterprise Institute, 1974).

Table 5-10—Community Hospital Beds per 1,000 Population and Occupancy by Hospital Location, 1986

	Beds per 1,000 population		Occupancy rate[a] (percent)	
	Nonmetro	Metro	Nonmetro	Metro
Alabama	4.4	5.3	54	65
Alaska	1.7	2.8	55	59
Arizona	2.4	3.3	53	65
Arkansas	4.1	5.3	49	67
California	2.7	3.1	49	63
Colorado	4.4	3.2	54	61
Connecticut	2.8	3.2	56	74
Delaware	2.8	3.8	69	67
Dist. of Columbia	0.0	7.5	0	78
Florida	3.6	4.4	53	63
Georgia	4.3	4.1	61	66
Hawaii	3.2	2.2	66	78
Idaho	3.6	2.9	53	67
Illinois	4.3	4.6	54	66
Indiana	3.2	4.6	49	61
Iowa	4.4	6.2	53	63
Kansas	6.0	4.0	47	63
Kentucky	3.7	5.2	61	65
Louisiana	3.5	4.9	46	61
Maine	3.6	5.2	62	73
Maryland	3.4	3.2	73	73
Massachusetts	3.7	4.3	65	69
Michigan	3.6	4.1	54	67
Minnesota	6.1	4.5	61	65
Mississippi	5.1	4.7	54	67
Missouri	3.6	5.7	51	67
Montana	5.7	5.9	57	62
Nebraska	5.6	6.2	51	61
Nevada	2.8	3.6	44	49
New Hampshire	4.0	2.6	65	66
New Jersey	0.0	3.9	0	75
New Mexico	2.5	3.1	58	61
New York	4.3	4.4	75	82
North Carolina	3.3	3.7	59	69
North Dakota	6.9	7.7	59	63
Ohio	3.4	4.7	50	66
Oklahoma	3.8	4.1	46	63
Oregon	3.2	3.1	47	59
Pennsylvania	4.0	4.7	66	71
Rhode Island	3.0	3.6	63	76
South Carolina	3.1	3.6	66	71
South Dakota	6.4	6.6	54	63
Tennessee	4.2	5.7	55	66
Texas	3.6	3.8	40	59
Utah	2.4	2.7	42	62
Vermont	3.7	4.7	63	81
Virginia	3.7	3.5	62	70
Washington	3.2	2.8	44	61
West Virginia	4.3	6.4	57	63
Wisconsin	4.7	4.4	61	60
Wyoming	4.6	3.8	51	49
Total U.S.	4.0	4.1	55	67

[a] Occupancy rates are based on the hospital's total number of beds (both acute care and other).

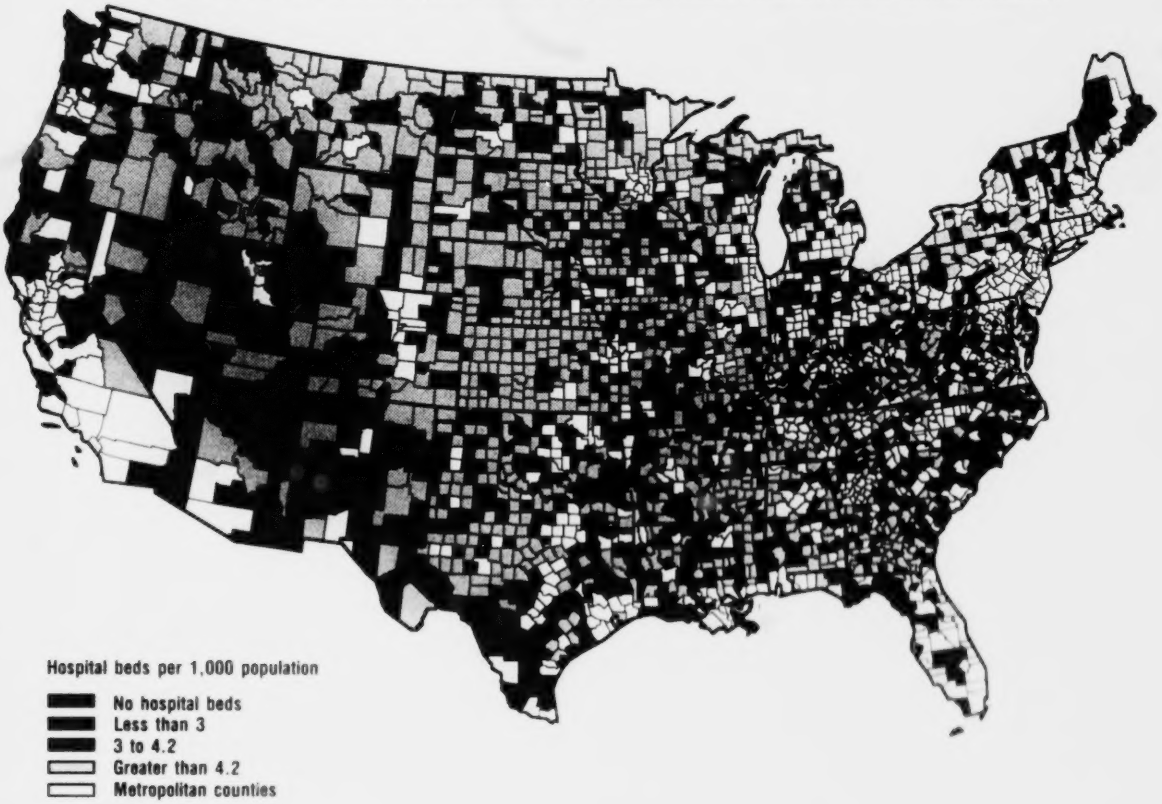
SOURCE: M. Merlis, "Rural Hospitals," U.S. Congress, Congressional Research Service, Washington, DC, no. 89-296 EPW, May 2, 1989.

the high bed-to-population ratios in more densely populated rural areas.

Other potential factors affecting changes in inpatient utilization include changes in medical practice, urban competition, and payment incentives.

Changes in Medical Practice—Changes in medical technology have enabled physicians and other providers to care for many patients in outpatient and nonhospital settings. As simple low-risk cases (e.g., cataract surgery) are increasingly cared for outside the hospital, the remaining inpatients are likely, on average, to have more serious medical problems requiring more intensive care and longer lengths of stay. This is probably a contributing factor in the trends toward both lower admissions and longer lengths of stay. In a recent study of hospital use by Medicare beneficiaries in five States from 1984 to

Figure 5-3—Short-Term Hospital Beds to Population Ratio, 1986 (by nonmetropolitan county)



SOURCE: T.C. Ricketts, Rural Health Research Center, University of North Carolina at Chapel Hill, NC. Analysis of unpublished Area Resource File data (provided by the U.S. Health Resources and Services Administration) conducted under contract with the Office of Technology Assessment, 1989 and 1990.

1986, the largest declines in hospital admission rates were for conditions that many physicians believe do not usually require hospitalization (e.g., simple pneumonia). On the other hand, rates of admissions involving some degree of subspecialty care and high technology (e.g., heart transplants) rose slightly during this period. The impact of these trends is significant for small rural hospitals. Those cases winning less consensus on the need for hospitalization typically represent the largest proportion of admissions to these hospitals (*134*).

Attractiveness and Utility of Urban Resources—The more rapid adoption of new, sophisticated technologies by urban hospitals may lure rural residents who perceive these hospitals to be providing superior care. Also, many rural residents travel to large urban hospitals to obtain specialized care not locally available. A recent study found this occurrence to be increasing. From 1984 to 1986, the volume of "technology-intensive" Medicare admissions in a five-State sample of rural hospitals either declined or rose at a much slower rate than the volume of such admissions to urban hospitals (*134*).

Pressures of Payers—During the 1980s, Medicare and other health care payers implemented cost containment measures that increased incentives for hospitals to discharge patients quickly. Medicare also intensified sanctions by Peer Review Organizations (PROs) for admissions deemed unnecessary (*486*). PRO efforts and other factors (e.g., changes in medical practice) are thought to have restricted "social admissions" of patients admitted to or allowed to stay in an acute-care setting who do not require an acute level of care. The effect of such

Photo credit: Gail Mooney

Small rural hospitals unable to support full-time physician specialists must often rely on itinerant physicians. Dr. Littleton, a radiologist, travels as needed to hospitals in 12 States.

factors on rural hospital utilization has not been studied.

Lower utilization is believed to affect the quality of certain inpatient services. Studies of various surgical procedures (e.g., total hip replacement) have found that worse outcomes tend to occur at lower volumes (*495,620*). Referral of patients needing such procedures to larger hospitals may be both economical and quality-enhancing.

Many small rural hospitals, unable to provide a sufficient volume of surgery to support a regular physician, employ itinerant surgeons (surgeons who travel to hospitals to operate on scheduled elective patients and typically are unavailable for followup care). A recent study of such hospitals found that the use of itinerant surgery may contribute to higher rates of poor quality care. In the 28 percent of small rural hospitals sampled that used itinerant surgeons, 16 percent of the cases treated by these surgeons had adverse outcomes (*695*). In such situations, there appears to be a tradeoff for the patient between having available some care of questionable quality and having no care available at all. Possible remedies for this predicament include: 1) voluntary regionalization of services to consolidate lower volume services and improve quality, and 2) selective contracting whereby payers stipulate that beneficiaries use only certain facilities for specific kinds of care.

Hospital Outpatient Utilization and Ambulatory Surgery

The number and volume of hospital services provided in outpatient settings increased rapidly in the 1980s, and the growth of outpatient visits was actually greater for rural than urban hospitals (table 5-11). From 1984 to 1988, total outpatient visits to rural hospitals increased by over one-third, and outpatient visits to the emergency room rose nearly 13 percent (*35*).

The increasing demand for outpatient care is reflected in the growth of new outpatient departments in many rural hospitals. From 1982 to 1985, the number of rural hospital outpatient departments rose 48 percent (*31*). By 1987, 60 percent of rural community hospitals had outpatient departments (*625*). As table 5-12 shows, the likelihood that rural hospitals have outpatient departments increases with the size of the hospital. Frontier hospitals are less likely and rural referral centers are more likely to have outpatient departments.[10]

The amount of surgery performed on hospital outpatients has increased dramatically in recent years. In 1984, about 28 percent of all surgeries in urban hospitals and 26 percent of rural hospital surgeries were performed on an ambulatory basis (table 5-11). By 1988, outpatient surgery accounted for one-half of total surgeries in rural hospitals and over 46 percent in urban hospitals (*35*). The number of hospitals providing ambulatory surgery has also grown rapidly. In 1980, only 65 percent of all community hospitals (rural and urban) performed ambulatory surgery (*490*). By 1987, 93 percent of rural hospitals provided ambulatory surgery (table 5-12). Larger hospitals are more likely to offer ambulatory surgery; nearly all rural hospitals with 200 or more beds provided this service, compared with only 77 percent of hospitals with fewer than 25

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[10] The percentage of hospitals with outpatient departments underrepresents the total number of hospitals actually delivering outpatient services. Most hospitals typically provide a substantial portion of nonurgent care in their emergency rooms.

Table 5-11—Community Hospital[a] Outpatient Utilization by Hospital Location, 1984-88

	1984	1985	1986	1987	1988	Percent change 1984-88
Total outpatient visits (thousands)						
Nonmetro	38,819	39,810	42,899	46,996	51,823	33.5
Metro	173,142	178,907	189,013	198,528	217,306	25.5
Emergency room visits[b] (thousands)						
Nonmetro	15,654	16,139	16,674	17,068	17,665	12.8
Metro	57,326	58,408	59,928	61,219	63,595	10.9
Percent of total surgeries done on outpatient basis						
Nonmetro	26.3	34.7	42.1	45.9	49.8	89.3
Metro	28.1	34.5	39.9	43.4	46.2	64.4

[a] Community hospitals defined as all non-Federal, short-term general and other special service hospitals.

[b] Outpatient visits primarily for true emergencies.

SOURCE: American Hospital Association, Hospital Statistics (Chicago, IL: AHA, 1985-89 eds.).

Table 5-12—Select Ambulatory Care Services Provided in Nonmetropolitan Community Hospitals[a] by Bed Size and Hospital Type, 1987

	Number/percent having			
	Outpatient department[b]		Ambulatory surgery	
Hospital	Number	Percent	Number	Percent
6-24 beds	100	55	141	77
25-49	402	53	682	91
50-99	498	60	785	95
100-199	337	64	509	97
200-299	100	76	131	99
300 or more beds	29	78	37	100
Total nonmetro	1,466	60	2,285	93
Sole community hospitals[c]	173	60	254	89
Frontier hospitals	137	53	199	77
Rural referral centers[c]	157	73	213	99

[a] Community hospitals defined here as all non-Federal, short-stay, nonspecialty hospitals (see app. C).

[b] Percent with organized, distinct outpatient departments. The percent of hospitals actually providing outpatient services is higher.

[c] As defined for Medicare purposes (see app. C).

SOURCE: Office of Technology Assessment, 1990. Data from American Hospital Association's 1987 Annual Survey of Hospitals.

beds (*625*). These smaller hospitals (many of them frontier hospitals) may have difficulty attracting surgeons and the necessary volume of surgical cases.

Although most ambulatory surgery is performed in hospital outpatient departments, there has been dramatic growth in the number and activity of separate, freestanding ambulatory surgery centers (ASCs). The number of ASCs tripled from 1983 to 1988, increasing from 239 to 983; the number of surgical operations performed by ASCs grew by 368 percent during this time (*489*). Little information exists on the nature of ASCs in rural areas. Only about 15 percent of ASCs are located in rural communities (*99*), presumably because centers rely on large volumes of service to cover fixed costs and sustain a profit.

Competition for Patients

Competition From Urban Providers

Anecdotal information suggests that some urban hospitals and physicians are expanding their service areas into rural communities in order to increase their patient base. Expansion tactics may include:

- advertisements stressing the quality of care and leading-edge technology available in the city;
- rural-based outpatient clinics, from which patients are referred to urban hospitals for diagnosis and treatment; and
- urban facilities such as ASCs and urgent care centers that target rural communities in order to capture their mobile and better-paying patients (leaving rural providers to provide less lucrative emergency care and care for more disabled and nonpaying patients).

Whether based on real or perceived better-quality care in urban hospitals, a trend toward urban-based care can be self-sustaining, reducing the confidence that rural physicians and their patients have in the local hospital.

Competition with urban-based managed care plans (e.g., health maintenance organizations) may be especially troublesome for some rural hospitals. The selective contracting process between hospitals and managed care plans emphasizes price discounts in exchange for an assured patient volume. A rural hospital may have to reduce its patient fees in order to compete for patients covered by the plans (*157*). Patients in these plans may be required or encouraged to use nearby urban hospitals rather than their local facilities. Also, since many of the utilization and cost control measures imposed by managed care plans are intended to limit hospitalization, participation by rural hospitals in these plans may further erode inpatient volume and revenues.

Local Competition

Competition among neighboring communities is inherent in rural life. For example, community pride in local school athletic teams may be evident in the competition and rivalry among small towns only a short distance apart. Competitive actions among rural health care providers commonly take three forms. First, competition may increase among rural hospitals operating in overlapping or adjacent market areas. One target for competition is physicians, who in turn may "play the hospitals off against each other" in order to have the hospitals add more services, equipment, or other new technologies that directly benefit the physicians. In some cases, two local hospitals that engage actively in competition may not realize that both facilities are losing patients to larger urban hospitals.

Second, rural hospitals may compete with their own physicians for patients and revenues. Physicians can now provide many surgical and ancillary services (e.g., laboratory tests) in their offices that previously were offered in the hospital. The ability of a physician to provide certain services at lower cost and with fewer regulatory restrictions than the local hospital may help to increase the physician's office-based revenues and profits. Consequently, some well-established physicians may become less dependent on the local hospital for income and may begin to reduce their hospital practice.

Third, urban hospitals and physicians may establish affiliated networks of loyal hospitals and physicians in rural areas. In these situations, rural physicians may be given incentives to admit patients to affiliated rural or urban hospitals rather than to local unaffiliated facilities.

PRIMARY CARE FACILITY CHARACTERISTICS AND UTILIZATION[11]

Number of Community Health Centers

Federally funded CHCs are important rural primary care providers. The number of CHCs receiving Federal grants has diminished in the 1980s, and the rate of decline has been much greater for rural CHC grantees than for urban grantees. Table 5-13 shows that while the number of urban CHCs decreased by just 1 percent from 1984 to 1988, the number of CHCs in rural areas dropped 20 percent, from 399 to 319 centers (*658*). Variations among regions are enormous. The number of grantees in 3 of the 10 U.S. Department of Health and Human Services (DHHS) administrative regions[12] remained unchanged or increased, while in 1 Midwestern region the number of rural grantees was reduced by one-half. Part of the decline was due to CHC mergers in the mid-1980s as part of an initiative by the U.S. Public Health Service. In 1988, 61 percent of all CHC grantees were in rural communities. Nearly one-third of these were located in the Southeast.

The decline in rural CHC grantees does not necessarily mean there are fewer delivery settings, since many centers have more than one service site. From 1984 to 1988, the total number of rural CHC service sites appears to have remained relatively constant, although definitional and data collection changes made by DHHS in 1986 make comparisons difficult.[13] From 1986 to 1988, the total number of rural CHC service sites decreased, but at one-third the rate of decline of rural grantees (table 5-13). The opposite was true of urban CHCs—the number of total service sites dropped nearly twice as fast as the number of grantees. In 1988, there were a total of

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[11] Although no nationwide data are available on local health departments, many rural LHDs are known to offer primary care services (see ch. 6 for examples).

[12] The DHHS regions are shown in app. F.

[13] The first year CHCs began using standard definitions to report their number of service sites was 1986. The total number of service sites is a count of the number of Federal grantees and permanent satellite clinics. It is not intended to include administrative sites where no clinic services are provided or specialty clinics operating under the same roof as other clinics (*585*).

Table 5-13—Number of Federally Funded Community Health Center (CHC) Grantees and Service Sites by Rural/Urban Status and Region, 1984-88[a]

Centers	1984		1985		1986		1987		1988		Percent change 1984-88	
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
Grantees												
Region[b] I	16	22	15	22	13	24	12	24	12	24	-25	9
II	24	43	24	43	23	44	22	40	20	35	-17	-19
III	65	25	63	24	62	23	54	23	52	22	-20	-12
IV	140	31	141	31	127	34	110	33	104	33	-26	6
V	39	26	37	27	35	28	33	27	31	27	-21	4
VI	37	15	34	16	40	17	37	17	38	17	3	13
VII	12	11	10	11	9	11	6	12	6	12	-50	9
VIII	24	7	25	7	26	8	21	7	20	7	-17	0
IX	26	22	26	21	29	22	30	24	30	23	15	5
X	16	7	16	7	18	7	16	7	16	7	0	0
Total	399	209	391	209	382	218	329	214	319	207	-20	-1
Total service sites[c]	763	433	791	402	838	464	821	428	793	417	4	-4

NOTE: Definitions used by U.S. Department of Health and Human Services regional offices to identify CHCs as rural and urban approximate a center's location in either a nonmetropolitan or metropolitan area.

[a] Federal Fiscal Years.

[b] Federal Department of Health and Human Services regions. See app. F for geographic display of regions.

[c] Total number of Community Health Center (CHC) service sites includes the number of Federal grantees and permanent federally supported satellite clinics. They are not intended to include administrative sites where no clinic services are provided or specialty clinics operating under the same roof as other clinics. Grantees may have more than one service site. Total service site data for 1984 and 1985 may be inaccurate; reporting by grantees improved beginning in 1986 with the use of standard definitions (see text).

SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Care Delivery and Assistance, Rockville, MD, unpublished data for rural community health centers 1984-88 from the BCRR file, provided by E. Sullivan, 1989. E. Sullivan, Bureau of Health Care Delivery and Assistance, Health Resources and Services Administration, U.S. Department of Health and Human Services, Rockville, MD, OTA personal communication, April 1990.

793 rural CHC service sites, or an average of 2.5 sites per rural CHC grantee (*585*).

Community Health Center Services

Little documentation is available on the range of services provided in rural CHCs. Traditionally, CHCs were intended to serve as sources of integrated and comprehensive primary care and preventive services, which would pay particular attention to needs of the poor (see ch. 3). Grantees were required to form a broad array of referral and cooperative linkages with other area providers that could deliver those services CHCs did not provide themselves. Early studies of rural CHCs and primary care programs often did not focus on their specific mix of services, but rather on the effectiveness of center organizational forms and operating efficiencies and their impact on patient health status and clinic self-sufficiency.

It may be difficult for small rural CHCs to provide a range of services comparable to that of larger centers, especially if the rural centers serve small populations. Many rural CHCs have apparently reduced the scope of services that supplement their delivery of basic primary medical care. In a survey of rural CHCs in 1986 and 1987, many centers reported having to reduce or eliminate services such as nutrition education that often are not covered by insurance. Also, according to the survey, worsening of the local economy was a factor in the increase in the proportion of CHCs (from 31 to 34 percent) that were unable to deliver some mandated basic primary care services (*307*).

Community Health Center Utilization

Federally funded CHCs in rural areas have experienced a surge in demand for primary care services. From 1984 to 1988, the number of visits to rural CHCs increased 18.5 percent, or 14 percent per CHC service site[14] (table 5-14) (*585,658*). Encounters with CHC-based primary care physicians accounted for most of this rise in demand, increasing 34 percent. Because the number of physicians rose at a faster rate than visits for the period, the number of patient encounters per primary care physician declined slightly (by 2 percent) (*658*).

There was considerable variation among DHHS regions in annual encounters per primary care physician from 1984 to 1988 (table 5-15).[15] Change in encounters per physician ranged from a drop of 12 percent in Region VIII to an increase of 14 percent in Region IX. Three of the 10 regions in 1988 had average annual encounters per physician that were below 4,200, the minimum level of productivity usually considered acceptable by DHHS, which administers the grant program (*658*).

One possible explanation for the sharp rise in demand in rural CHCs is rising rates of uninsuredness. CHCs and other publicly funded health centers (e.g., county health departments) are commonly viewed as sources of basic health care open to everyone, regardless of one's ability to pay. A survey of rural CHC operations from 1986 to 1987 found that most of the new patient users could not pay the full costs of their care. Of the new users of rural CHCs, 83 percent were reported to have no public or private insurance or lacked the income necessary to pay the medical care fees (*307*).

Number of Certified Rural Health Clinics

Many rural CHCs and other primary care providers are eligible to become certified rural health clinics (RHCs). RHCs receive cost-based rates of payment from Medicare and Medicaid if they offer the services of a midlevel practitioner at least 50 percent of the time[16], and if they are located in a nonurbanized Medically Underserved Area (MUA) or Health Manpower Shortage Area (HMSA).[17] When the RHC program was established in 1977 by Public Law 95-210, some health care experts estimated there would be nearly 2,000 rural clinics certified by Medicare as RHCs by 1990 (*588*). As of April 1989, there were 470 certified RHCs in 37 States; about one-half were in just 8 States (table 5-16) (*653a*). Even though over 2,000 nonmetro counties are designated as MUAs or HMSAs, few actually have RHCs (figure 5-4) (*511*). The Federal Government is reported to have actually certified

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[14] Service sites of CHCs include Federal grantees and any permanent federally supported satellite clinics.

[15] See app. F for geographic display of regions.

[16] In 1989, Congress (Public Law 101-239) reduced from 60 to 50 percent the minimum amount of time a midlevel practitioner must be on site during RHC operations.

[17] See ch. 11 for a discussion of MUAs and HMSAs.

Table 5-14—Utilization of Rural Federally Funded Community Health Center Grantees and Service Sites, 1984-88

Utilization	1984	1985	1986	1987	1988	Percent change 1984-88
Total patient encounters[a]....	9,315,177	9,484,803	10,056,534	10,798,460	11,041,636	18.5
Number of rural CHC grantees...............	399	391	382	329	319	-20.0
Average patient encounters per rural CHC grantee......	23,346	24,258	26,326	32,822	34,613	48.3
Number of rural CHC service sites[b].........	763	791	838	821	793	3.9
Average patient encounters per rural CHC service site..	12,209	11,191	12,001	13,153	13,924	14.0

NOTE: Definitions used by U.S. Department of Health and Human Services regional offices to identify CHCs as rural approximate a center's location in a nonmetropolitan area.

[a] Includes encounters both on and off the center site.

[b] The total number of rural CHC service sites includes Federal grantees and permanent federally supported satellite clinics. They are not intended to include administrative sites where no clinic services are provided, or speciality clinics operating under the same roof as other clinics. Grantees may have more than one service site. Total service site data for 1984 and 1985 may be inaccurate; reporting by grantees improved beginning in 1986 with the use of standard definitions (see text).

SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Care Delivery and Assistance, Rockville, MD, unpublished 1984-88 data for rural community health centers from the BCRR file, provided by E. Sullivan, 1989; E. Sullivan, Bureau of Health Care Delivery and Assistance, U.S. Department of Health and Human Services, personal communication, April 1990.

Table 5-15—Primary Care Physician Utilization in Rural Federally Funded Community Health Centers by Region, 1984-88

Region[a]	Patient encounters per primary care physician					Percent change 1984-88
	1984	1985	1986	1987	1988	
I..............	3,880	3,733	3,857	3,951	3,829	-1.3
II.............	5,479	5,537	5,582	5,189	4,905	-10.5
III............	4,270	4,361	4,352	4,345	4,534	6.2
IV.............	4,486	4,308	4,153	4,012	4,227	-5.8
V..............	4,531	4,406	4,273	4,338	4,490	-0.1
VI.............	4,540	4,566	4,396	4,262	4,412	-2.8
VII............	4,281	4,486	4,155	3,997	4,280	0
VIII...........	4,378	3,599	3,879	3,982	3,866	-11.7
IX.............	4,188	4,083	4,193	4,408	4,774	14.0
X..............	3,655	3,716	3,648	3,241	3,810	4.2
Total........	4,532	4,456	4,384	4,283	4,431	-2.2

NOTE: Definitions used by U.S. Department of Health and Human Services regional offices to identify CHCs as rural approximate a center's location in a nonmetropolitan area.

[a] Federal Department of Health and Human Services regions. See app. F for geographic display of regions.

SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Care Delivery and Assistance, Rockville, MD, unpublished 1984-88 data for rural community health centers from the BCRR file, provided by E. Sullivan, 1989.

over 800 rural health clinics since 1978, but nearly one-half have withdrawn from the program for various reasons, including concerns over RHC regulations (see ch. 7) (*588*).

Independent or freestanding clinics account for about 95 percent of all RHCs. Only 25 RHCs are provider-based clinics (i.e., sponsored by a hospital, nursing home, or home health agency) (*653a*).

Table 5-16—Number of Certified Rural Health Clinics[a], and Nonmetropolitan Counties in Which Clinics Could Qualify for Certification, by State, 1989

State	Certified rural health clinics: Total	Independent	Provider-based	Number of nonmetro counties[b] designated as either a HMSA[c] or an MUA[c]
California	52	49	3	21
North Carolina	38	35	3	73
West Virginia	28	28	0	45
Pennsylvania	28	28	0	31
Tennessee	26	26	0	68
Maine	25	25	0	13
New York	24	24	0	26
New Mexico	22	16	6	29
South Dakota	22	21	1	57
Georgia	21	21	0	116
Florida	18	18	0	35
Ohio	17	17	0	37
Alaska	16	16	0	0*
Oregon	13	13	0	25
Colorado	13	13	0	36
Washington	13	12	1	24
Iowa	13	12	1	66
Idaho	8	8	0	30
Mississippi	8	8	0	75
Utah	8	6	2	16
Vermont	6	6	0	12
Kentucky	6	1	5	89
Nevada	5	5	0	13
Alabama	5	5	0	48
Arizona	5	4	1	12
Kansas	5	3	2	69
Illinois	4	4	0	65
Minnesota	4	4	0	61
Wisconsin	3	3	0	48
Rhode Island	3	3	0	0*
Montana	2	2	0	40
New Hampshire	2	2	0	4
Virginia	2	2	0	61
South Carolina	2	2	0	34
Maryland	1	1	0	8
Texas	1	1	0	186
Wyoming	1	1	0	20
Arkansas	0	0	0	65
Connecticut	0	0	0	1
Delaware	0	0	0	1
Hawaii	0	0	0	0
Indiana	0	0	0	41
Louisiana	0	0	0	45
Massachusetts	0	0	0	2
Michigan	0	0	0	49
Missouri	0	0	0	87
North Dakota	0	0	0	44
New Jersey	0	0	0	0*
Nebraska	0	0	0	78
Oklahoma	0	0	0	51
Total U.S.	470	445	25	2058[d]

*These States have no nonmetro counties. Alaska was considered a single metro county in this analysis.

[a] Clinics certified under the Rural Health Clinics Act (Public Law 95-210) as of April, 1989.

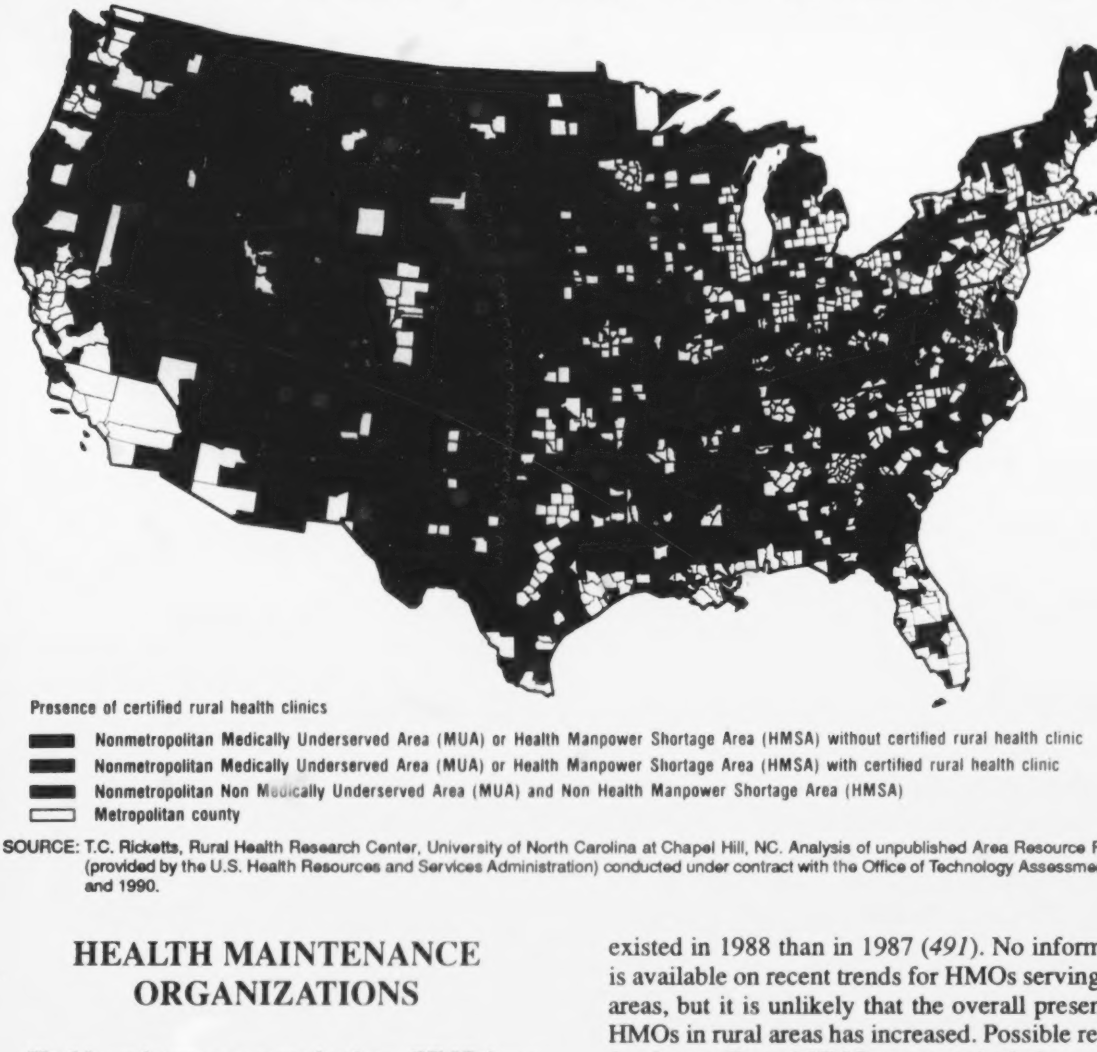
[b] This is an underestimate of the number of counties that qualify under Public Law 95-210, since it only includes nonmetro counties. Nonurbanized metro counties may also qualify.

[c] Primary care Health Manpower Shortage Areas, 1986. Medically Underserved Areas as of 1981. Includes whole and partial-county designations.

[d] This may be a slight overestimate since MUA designations can cross State boundaries.

SOURCES: U.S. Department of Health and Human Services, Health Care Financing Administration, Baltimore, MD, unpublished data on certified rural health clinics, provided to OTA in 1989. T.C. Ricketts, Rural Health Research Center, University of North Carolina, Chapel Hill, NC. Analysis of unpublished data (provided by the U.S. Health Resources and Services Administration) conducted under contract to Office of Technology Assessment, 1989.

Figure 5-4—Certified Rural Health Clinics, 1988 (by nonmetropolitan MUA or HMSA county status)


Presence of certified rural health clinics
■ Nonmetropolitan Medically Underserved Area (MUA) or Health Manpower Shortage Area (HMSA) without certified rural health clinic
■ Nonmetropolitan Medically Underserved Area (MUA) or Health Manpower Shortage Area (HMSA) with certified rural health clinic
■ Nonmetropolitan Non Medically Underserved Area (MUA) and Non Health Manpower Shortage Area (HMSA)
□ Metropolitan county

SOURCE: T.C. Ricketts, Rural Health Research Center, University of North Carolina at Chapel Hill, NC. Analysis of unpublished Area Resource File data (provided by the U.S. Health Resources and Services Administration) conducted under contract with the Office of Technology Assessment, 1989 and 1990.

HEALTH MAINTENANCE ORGANIZATIONS

Health maintenance organizations (HMOs) provide a specified, often comprehensive set of services to an enrolled population on a prepaid basis. HMOs in rural areas showed substantial growth in the early 1980s. As of June 1984, there were 118 HMOs serving rural areas in 34 States, and 19 of these were based in rural areas. This was a substantial increase over the 79 HMOs serving rural areas in 1981. The number of rural residents estimated to be served by HMOs in 1984 was approximately 500,000, or about 1.7 percent of the total rural population (*127*).

More recently, the number of HMOs nationwide has declined slightly; 6.6 percent fewer HMOs existed in 1988 than in 1987 (*491*). No information is available on recent trends for HMOs serving rural areas, but it is unlikely that the overall presence of HMOs in rural areas has increased. Possible reasons for the small rural HMO presence include:

- limited prospects for enrollment due to the relatively low number of large employers in many rural areas,
- continued resistance of some rural physicians to participation in HMOs,
- lack of available capital for development (Federal funds for HMO development have ceased), and
- concerns of rural HMOs serving Medicare patients about the adequacy of Medicare payments and how they are calculated.

HOSPITAL FINANCIAL VIABILITY

Revenue Issues

Demand for Uncompensated Care

An increasing number of persons seeking care are unable to pay for it (see ch. 2). Most uninsured persons are employed. In rural areas residents are often self-employed; they work in agriculture or small businesses without insurance benefits.

Hospitals are providing increasing amounts of care for which it takes longer to receive payment, or care for which they will receive little or no payment at all. As table 5-17 shows, the average number of days it takes rural hospitals to collect the full amount of a bill rose 7 percent from 1984 to 1987, to 75 days. In 1987, the average period an account was outstanding was highest for rural hospitals with under 50 beds (*30*). It is unclear how much of the increase between 1984 and 1987 may be attributed to problems with patient collections, payment delays from third party insurers, or hospital billing errors that delay payment. Regardless of the cause, this overall increase in the time it takes hospitals to collect payments suggests a decrease in available cash to cover expenses.

The amount of uncompensated care provided in rural hospitals increased over 26 percent from 1984 to 1987, to nearly $1.5 billion (about $565,000 per hospital) (table 5-18). The largest proportional increases were in the smallest facilities. The amount of uncompensated care increased by 59 percent in hospitals with fewer than 25 beds, and it grew over 35 percent in facilities of 25 to 49 beds. (The amount of uncompensated care in urban hospitals also increased during the period, rising 33 percent to over $11 billion or over $3.7 million per hospital (*30*).) A study of rural hospitals in Florida found that 13 percent of their patients in 1985 did not pay the full bill, compared with 10 percent for the State's urban hospitals. The average rural hospital provided inpatient care to about one charity patient for each day of the year (*194*).

Uncompensated care has always existed in hospitals; in fact, hospitals receiving Hill-Burton funds were required to provide a certain amount of uncompensated care (box 5-B). When the distribution of uncompensated care becomes uneven, however, hospitals providing the most such care and bearing the heaviest social burden are placed at a competitive disadvantage that may ultimately threaten their survival. All States provide financial assistance to hospitals to cover some of the costs of such care, either as adjustments under the Medicaid hospital payment system or through direct subsidies (*491*). However, these subsidies do not necessarily cover the full costs of such care, and some hospitals are concerned that these programs will be unable to support the future indigent service loads.

Table 5-17—Average Days in Patient Accounts Receivable[a] for Community Hospitals[b], by Hospital Location and Bed Size, 1984 and 1987

Hospital	1984	1987
Metro	69.0	76.0
Nonmetro	70.0	75.0
6-24 beds	81.4	81.2
25-49	75.8	81.3
50-99	71.3	74.6
100-199	68.7	74.8
200-299	70.5	73.1
300 or more	65.5	71.2

[a] Defined as net patient receivables multiplied by 365 days divided by net patient revenue. Net patient revenue consists of gross patient revenue less deductions for contractual adjustments, bad debts, and charity.

[b] Community hospitals defined here as all non-Federal, short-term general and other special service hospitals.

SOURCE: American Hospital Association, Chicago, IL, unpublished data from the Annual Survey of Hospitals, 1984-1987.

Reliance on Public Payment and Funding Sources

Most rural community hospitals depend to a significant degree on public sources of payment. As shown in table 5-19, 52 percent of all rural hospital net patient revenue in 1986 came from government sources. Medicare revenues play a particularly large role. In 1986, nearly 42 percent of all patient revenue of rural hospitals was derived from serving Medicare patients (*30*). (For urban hospitals, the figure was 39 percent.) While three-fourths of hospitals with 25 to 99 beds received more than 42 percent of their patient revenue from Medicare, hospitals with fewer than 25 beds and hospitals with at least 100 beds relied much less on Medicare revenues (table 5-20) (*32*).

The greater dependency on Medicare revenues in rural than in urban hospitals may be a result of the

Table 5-18—Aggregate Uncompensated Care in Community Hospitals[a] by Hospital Location and Bed Size, 1984-87

Hospital	Uncompensated care (millions of dollars)				Percent change 1984-87
	1984	1985	1986	1987	
Metro	$8,377	$8,301	$10,320	$11,174	33.4
Nonmetro	1,162	1,225	1,344	1,468	26.3
6-24 beds	8	9	11	13	59.0
25-49	107	116	141	145	35.5
50-99	294	314	353	376	27.9
100-199	425	454	485	507	19.3
200-299	185	196	223	255	37.8
300 or more	143	135	131	171	19.6

NOTE: Uncompensated care costs include deductions from hospital revenue attributable to bad debt and charity care.

[a] Community hospitals defined as all non-Federal, short-term general and other special service hospitals.

SOURCE: American Hospital Association, Chicago, IL, unpublished data from the Annual Survey of Hospitals, 1984-87.

high rural concentration of elderly residents, who typically are less mobile and may be more likely than other rural residents to receive care at the local hospital. Medicaid revenues, on the other hand, are a slightly lower percentage of total patient revenues in rural than in urban hospitals (8.7 percent *v.* 9.6 percent in 1986) (table 5-19). This is not necessarily a positive factor for rural hospitals however; poor rural residents are less likely than poor urban ones to be eligible for Medicaid (see ch. 2), and fewer Medicaid patients may mean more charity patients.[18]

Rural hospitals increasingly depend on State and local tax subsidies. Table 5-21 shows that in 1987, 69 percent of rural community hospitals received non-Federal tax appropriations worth over $216 million. The average tax appropriation per hospital doubled from 1984 to 1987. Very large rural hospitals receive the largest State and local subsidies, with the smallest hospitals a somewhat distant second (*30*).

Many of the health care dollars that might help support rural hospitals are spent outside the community. A study of 3 rural communities in Washington, each with a hospital of 50 or fewer beds, found that about one-half the residents' expenditures for care were not spent in those communities. In 1985, the total expenditures for health services by residents in the three communities was just under $31 million; the revenues needed to support the communities' local health care services was approximately $14.5 million, of which 62 percent was for the hospital (*46*).

Difficulties in Shifting Costs

Faced with providing uncompensated care, a health facility has three options to cover the loss:

- private or public subsidy (e.g., charitable donations),
- recouping sufficient extra revenue from paying patients, or
- internal cross-subsidy from other profitable activities and investments.

Rural hospitals are at a particular disadvantage in trying to realize additional reimbursement, because their small size makes it difficult to spread costs to large numbers of paying patients. Hospitals with a high proportion of Medicare and Medicaid patients have additional problems with cost-shifting, since these sources of payment are relatively inflexible.

A recent study in Wisconsin found that 18 to 35 percent of charges by rural Wisconsin hospitals to private-pay patients were required to cover revenue shortfalls from Medicare, Medicaid, and charity care. The smaller hospitals (with an average daily

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[18] In many States, Medicaid payment levels for hospital and physician care remain significantly below provider costs or charges for such care (see ch. 3).

Box 5-B—The Hill-Burton Uncompensated Care Obligation

A crucial continuing element of the Hill-Burton program (see box 5-A) is the "free-care" obligation of hospitals and other health facilities that received its construction funds to provide a reasonable volume of services to persons unable to pay. In addition, health facilities agreed to "community service" (i.e., to make their services available to all persons residing in their geographic areas).

The free-care obligation is a time-limited commitment, usually for 20 years from the date the assisted project opened for service. The amount of service each facility is committed to provide is determined through a formula based on the facility's operating budget and the amount of assistance received. Persons whose incomes fall below the Federal poverty guidelines are eligible for free care at facilities that are still under the free-care obligation (*320*).

The community service obligation is not time-limited; it applies as long as the facility is in operation. It does not require the facility to provide general services at no charge, as long as the facility has fulfilled its free-care obligation. However, the community service obligation does prohibit a hospital from denying emergency services to persons because they are unable to pay (*320*).

census of 35 patients) had the largest average cost shift, equal to 35 percent of charges (*563*).

Medicare's Impact on Hospital Operating Margins

This section briefly examines the contribution of Medicare's prospective payment system (PPS) to the revenue and fiscal health of rural hospitals. In the fifth year under PPS (roughly 1988), average Medicare payments per case to rural hospitals were 43 percent[19] lower than those to urban hospitals (*494*). This difference in payment roughly parallels that in average operating costs per case (table 5-22). Within rural hospitals, the smallest hospitals have the lowest per-case costs (*93a*). The gap between payments and costs has worsened over time.

Table 5-19—Sources of Net Patient Revenue[a] of Community Hospitals,[b] by Hospital Location, 1986

	Nonmetro hospitals	Metro hospitals	All hospitals
Percent Medicare....	41.9	38.6	39.1
Percent Medicaid....	8.7	9.6	9.5
Percent other Government.........	1.0	1.8	1.7
Percent total non-Government.....	48.4	50.0	49.7
Total............	100.0	100.0	100.0

[a] Net patient revenue consists of gross patient revenue less deductions for contractual adjustments, bad debts, and charity care.

[b] Community hospitals defined as all non-Federal, short-term general and other special service hospitals.

SOURCE: American Hospital Association, Chicago, IL, unpublished data from the Annual Survey of Hospitals, 1984-87.

Table 5-20—Distribution of Hospitals by Medicare Percentage of Net Patient Revenue[a], 1986

	Medicare percentage of net patient revenue:		
	0-42	43-52	53+
	Percent distribution of hospitals:		
Total hospitals......	53	38	9
Nonmetro hospitals			
6-24 beds..........	75	12	13
25-49..............	23	61	16
50-99..............	26	64	10
100-199............	74	21	6
200 or more	67	31	3
Total nonmetro...	41	48	11

[a] Net patient revenue consists of gross patient revenue less deductions for contractual adjustments, bad debts, and charity care.

SOURCE: American Hospital Association, Profile of Small or Rural Hospitals 1980-86 (Chicago, IL: AHA, 1988).

Through the first 5 years of PPS, Medicare payments per case rose an average of 7.4 percent a year while operating costs per Medicare case increased 8 percent annually (*495*).[20]

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[19] Preliminary estimate.

[20] PPS years 1 through 5 correspond roughly to Federal fiscal years 1984 to 1988. In the first year of PPS, average increases in per-case payments were noticeably higher than in later years. Although PPS had intended to restrict payments in its first years to be no higher or lower than would have occurred under cost-based reimbursement, Medicare revenues for hospitals initially increased much faster than hospital costs.

Table 5-21—Community Hospitals[a] Receiving Tax Appropriations From State and Local Governments, by Hospital Location and Bed Size, 1984 and 1987

	1984			1987		
Hospital	Number	Percent	Tax appropriations per hospital	Number	Percent	Tax appropriations per hospital
Metro................	2,468	81	$881,104	2,441	81	$1,230,534
Nonmetro............	1,762	65	79,556	1,791	69	120,680
6-24 beds..........	77	42	130,153	97	51	170,118
25-49...............	410	51	105,889	514	64	102,309
50-99...............	635	68	75,904	583	65	103,045
100-199............	480	79	67,480	441	82	138,474
200-299............	118	90	28,892	123	91	14,586
300 or more	42	91	65,297	33	87	730,703

[a]Community hospitals defined here as all non-Federal, short-term general and other special service hospitals.

SOURCE: American Hospital Association, Chicago, IL, unpublished data from the Annual Survey of Hospitals, 1984-1987.

Table 5-22—Average PPS Operating Costs Per Case of Hospitals in the Fifth Year of PPS, by Hospital Location and Type

Hospital type[a]	Average costs per case	Percentage difference from average costs per case for all hospitals
Metro................	$4,746	10.4
Nonmetro............	2,899	-32.5
Under 50 beds......	2,494	-42.0
50-99...............	2,624	-40.0
100-169............	2,983	-30.6
170 beds and over..	3,410	-20.7
Rural referral.......	3,455	-19.6
Sole community.......	2,938	-31.7
Other nonmetro.......	2,633	-38.7

NOTE: PPS stands for Medicare's prospective payment system. Hospitals in Maryland and New Jersey are excluded. Fifth-year PPS roughly corresponds to Federal fiscal year 1988.

[a]All PPS hospitals.

SOURCE: J. Boulanger, Prospective Payment Assessment Commission, Washington, DC, personal communication, April 1990.

As a consequence of the trends in Medicare payments and costs, Medicare PPS operating margins[21] declined substantially for both rural and urban hospitals after the first 2 years of PPS (table 5-23). Eleven percent of rural hospitals had negative margins for 4 of the first 5 PPS years, and by year 5, over one-half of rural hospitals had negative margins (table 5-24). The smallest rural hospitals (with under 50 beds) fared the worst; 10 percent of hospitals in this group had margins lower than minus 49 percent (*495*).

Designated SCHs receive special treatment under PPS (see ch. 3), but—at least until recent changes in the payment law—this special treatment has not actually translated into financial protection. In PPS year 5, the average Medicare operating margin of SCHs was minus 4.2 percent, and the bottom 10 percent of SCHs had margins averaging minus 45 percent (table 5-24). In fact, depending on their costs, some SCHs would have received higher Medicare payments under national rates—one reason why some sole providers have not sought the SCH designation (*487*). New payment rules may enhance SCH operating margins, at least for Medicare-related services (see ch. 3).[22]

The poor operating performance of rural hospitals under Medicare is not explained by the high percentage of Medicare patients served. In PPS year 4, rural hospitals with few Medicare days had larger negative Medicare margins than did those with moderate shares of Medicare days. Furthermore, those rural hospitals with the smallest proportion of

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[21] The Medicare operating margin indicates how a hospital is faring financially on the services it provides to Medicare patients. It is equal to revenues received under PPS less the operating costs covered by PPS payments, divided by PPS revenues and then multiplied by 100. Medicare revenues and costs for services not covered under PPS, such as capital expenditures and direct medical education costs, are excluded (*382*). A surplus or positive margin occurs when revenues exceed costs, and a loss or negative margin follows when the opposite is true.

[22] Changes made by Congress in 1989 (Public Law 101-239) are intended to more effectively match Medicare payments to costs of SCHs and rural hospitals with fewer than 100 beds and at least 60 percent Medicare patients or days of care (see ch. 3).

Table 5-23—Hospital PPS Operating Margins for the First 5 Years of PPS, by Hospital Location and Type

Hospital type[b]	Annual operating margins (percent)[a] PPS 1	PPS 2	PPS 3	PPS 4	PPS 5	Percentage of hospitals with 4 years of negative margins in first 5 years
Metro	15.8	15.5	11.3	6.8	3.6	3.2
Nonmetro	8.4	8.8	3.1	-0.3	-2.3	10.7
Under 50 beds	6.4	6.0	-0.9	-2.3	-3.5	11.9
50-99	8.4	7.4	1.4	-1.6	-4.0	11.3
100-169	8.8	8.1	3.0	-0.7	-0.5	7.5
170 beds and over	9.4	12.4	6.9	2.4	-1.8	6.9
Rural referral	9.5	13.4	8.2	4.3	-0.1	3.5
Sole community	6.9	6.2	1.2	-2.7	-4.2	13.2
Other nonmetro	8.0	6.5	0.3	-2.8	-3.4	11.1

NOTE: PPS stands for Medicare's prospective payment system. Hospitals in Maryland and New Jersey are excluded; hospitals in Massachusetts and New York are included beginning in PPS 3.

[a] PPS 1-PPS 5 roughly corresponds to Federal fiscal years 1984-88.

[b] All PPS hospitals.

SOURCE: Prospective Payment Assessment Commission, Medicare Prospective Payment and the American Health Care System: Report to Congress (Washington, DC: U.S. Government Printing Office, June 1990).

Table 5-24—Fifth-Year Hospital PPS Operating Margins: Means and Percentiles by Hospital Location and Type

Hospital type[a]	Mean percent	10th percentile	50th percentile	90th percentile
All hospitals	2.6	-28.3	-0.5	18.6
Metro	3.6	-22.2	1.2	19.7
Nonmetro	-2.3	-33.9	-2.6	17.2
Under 50 beds	-3.5	-48.5	-2.4	20.4
50-99	-4.0	-28.2	-3.2	14.0
100-169	-0.5	-28.2	-1.8	13.3
170 beds and over	-1.8	-16.8	-1.7	14.8
Rural referral	-0.1	-14.8	1.1	15.5
Sole community	-4.2	-45.0	-6.3	14.5
Other nonmetro	-3.4	-35.2	-2.6	18.0

NOTE: PPS stands for Medicare's prospective payment system. Hospitals in Maryland and New Jersey are excluded. The fifth year PPS roughly corresponds to Federal fiscal year 1988.

[a] All PPS hospitals.

SOURCE: Prospective Payment Assessment Commission, Medicare Prospective Payment and the American Health Care System: Report to Congress (Washington, DC: U.S. Government Printing Office, June 1990).

Medicare days have shown poorer Medicare margins since the beginning of PPS (*492*).

Ambulatory Surgery and Medicare Payment

Rural hospitals have found revenue from outpatient services increasingly important to their survival. In 1987, over 23 percent of all gross patient revenue in rural hospitals was from outpatient services; this proportion represents an increase of more than 50 percent since 1984 (table 5-25). Smaller rural hospitals had the greatest dependence on outpatient revenue. By comparison, less than 19 percent of patient revenue in urban hospitals was from outpatient sources (*30*).

Medicare payment for ambulatory surgery can be a major source of outpatient revenue. Current Medicare payment for hospital outpatient surgery is based on the lesser of reasonable costs or a blend of hospital costs and freestanding ambulatory surgery center (ASC) rates. Freestanding ASCs currently receive lower payment rates from Medicare, and they reportedly have lower fixed costs than do hospitals. A recent analysis found that hospital

Table 5-25—Community Hospitals:[a] Gross Outpatient Revenue From Outpatients as a Percent of Total Gross Patient Revenue, by Hospital Location and Bed Size, 1984 and 1987

	1984	1987
Metro hospitals	14.1	18.5
Nonmetro hospitals	15.3	23.5
6-24 beds	20.7	34.3
25-49	17.2	27.6
50-99	16.1	25.5
100-199	15.2	23.5
200-299	14.3	20.7
300-399	14.1	18.5
400-499	12.8	18.1
500 or more	9.1	13.9

NOTE: Gross patient revenue consists of revenue based on full established rates from services rendered to patients, including payments received from or on behalf of individual patients.

[a] Community hospitals defined here as all non-Federal, short-term general and other special service hospitals.

SOURCE: American Hospital Association, Chicago, IL, unpublished data from Annual Survey of Hospitals, 1984-87.

outpatient surgery costs are significantly greater than the current blended payment rate (table 5-26) (*490*). Hospitals reimbursed under the blended rate receive payments that are 19 percent lower than their per-case costs.[23]

Medicare expenses for outpatient care have increased dramatically in recent years, and Congress has directed that a prospective payment system be developed for such care (see ch. 3). A danger exists that more stringent outpatient payment controls could further increase the risk of survival for many rural hospitals. A 1989 study found that if proposed per-case payment rates to ASCs were applied to rural hospitals, they would be 38 percent less than hospital costs (table 5-26) (*490*). Outpatient surgery costs for a hospital service may be greater than ASC costs for that service for a number of reasons:

- Most hospitals, in an effort to lower inpatient costs under PPS, have allocated portions of inpatient care and overhead expenses to outpatient services, whose cost thus becomes overstated.
- ASCs may "skim" the least-complicated cases and better-paying patients, leaving competing hospitals with the more complex and uncompensated cases.
- At least 85 percent of ASCs are located in urban areas (*99*). ASCs can generate low costs through specializing in high-volume services. Rural hospitals, on the other hand, generally have low surgical volumes due to low population density in their service areas.
- Hospitals generally provide a wider range of needed services than do ASCs, including more nonroutine care and standby capacity for emergencies that result in higher fixed costs. Other requirements associated with the need to accommodate intensive care in hospitals (higher costs of skilled staff and supplies) may also add to cost differences between hospitals and ASCs.

Incentives for rural hospitals to provide more efficient outpatient care may well be appropriate. A payment system that assumes that rural hospitals can achieve the high-volume efficiencies of ASCs, however, will probably be insufficient to cover costs and may further threaten hospital survival.

Costs and Operating Margins

Fed by rising amounts of uncompensated care and inflexible or inadequate reimbursement from public payers, total expenditures of rural hospitals have been growing faster than total revenues. From 1984 to 1987, total expenses for rural hospitals rose by 15.8 percent, while revenues increased by only 14.4 percent (table 5-27). The smallest rural hospitals experienced the largest shortfalls; total expenses for hospitals with fewer than 25 beds increased by 28.5 percent, while total revenues rose by only 21.9 percent (*30*).

By 1987, the smallest rural hospitals also had the highest total expenses per inpatient day—$724 for hospitals with fewer than 25 beds, compared with $534 for all rural hospitals (table 5-28) (*625*). Small SCHs and frontier hospitals had especially high expenses per day, suggesting that the very smallest and most isolated rural hospitals have the greatest difficulty providing a sufficient volume of services to cover their fixed expenses. Expenses also increased with size for very large hospitals, possibly reflecting the delivery of more complex care. For

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[23] The analysis did not account for any improvements in hospital efficiency brought about by reforms under Medicare's prospective payment system.

Table 5-26—Mean Hospital Costs Per Case Compared With Mean Proposed ASC Payments Per Case and Blended Rate Payments Per Case, by Hospital Location and Bed Size

Hospital type	Percent of total ASC-approved surgical cases	(A) Facility costs per case[a]	(B) Proposed ASC payment per case[b]	(C) Blended rate payment per case[c]	Difference between columns (A) and (B) costs per case		Difference between columns (A) and (C) costs per case	
					dollars	percent	dollars	percent
All..................	100	$640	$394	$517	-$246	-38	-$123	-19
Metro................	81	675	414	545	-261	-39	-130	-19
Nonmetro.............	19	580	361	471	-219	-38	-110	-19
Under 50 beds.......	2	551	338	445	-213	-39	-107	-19
50-99...............	5	592	360	476	-232	-39	-116	-20
100-169.............	6	611	379	495	-231	-38	-116	-19
170 beds and over...	6	563	386	474	-176	-31	-88	-16

NOTE: ASC stands for ambulatory surgery center. Cost and payment estimates based on outpatient department surgical bills from October 1, 1987 through June 30, 1988.

[a] The U.S. Health Care Financing Administration estimated costs for each bill by applying hospital-specific departmental cost-to-charge ratios from the Medicare Cost Report to charges on the outpatient department bill.

[b] ASC payment per case is adjusted to reflect area wage indices.

[c] The blended rate payment equals 50 percent facility costs plus 50 percent proposed ASC payment.

SOURCE: Prospective Payment Assessment Commission, Medicare Payment for Hospital Outpatient Surgery: The Views of the Prospective Payment Assessment Commission (Washington, DC: U.S. Government Printing Office, April 1989).

Table 5-27—Changes in Total Revenue and Expenses for Community Hospitals[a] by Hospital Location and Bed Size, 1984 and 1987

	Percent change 1984 to 1987	
	Total revenues	Total expenses
Nonmetro hospitals	14.4	15.8
6-24 beds	21.9	28.5
25-49	21.0	23.7
50-99	16.9	18.7
100-199	6.9	7.8
200-299	25.9	27.4
300 or more	10.5	10.0
Metro hospitals	23.9	25.0

[a] Community hospitals defined here as all non-Federal, short-term general and other special service hospitals.

SOURCE: American Hospital Association, Chicago, IL, unpublished data from Annual Survey of Hospitals, 1984-1987.

rural hospitals of a given size, total expenses were highest in nonprofit hospitals and lowest in government-owned facilities (table 5-29) (*625*).

Since expenses were increasing faster than revenues from 1984 to 1987, patient and total hospital margins declined in both rural and urban hospitals for the period[24] (table 5-30). In 1987, urban hospitals experienced the poorest patient margins (minus 3.7 percent), while rural hospitals had the worst total margins (plus 3.2 percent). Nearly all rural hospitals had negative patient margins by 1987 (as low as minus 21.5 percent for hospitals with fewer than 25 beds); most rural hospitals (except those with under 50 beds) were able to achieve positive total margins. Larger rural hospitals generally had better patient and total margins than smaller rural hospitals. Small rural hospitals were more dependent on nonpatient revenues (e.g., tax appropriations) than were larger hospitals, but even these revenues were not sufficient to result in positive total margins (*30*).

Operating with a negative margin in any single year does not necessarily mean financial distress. Negative margins may be present in financially sound hospitals in a year when the hospital is faced with paying for large or unexpected facility renovations or major equipment. Conversely, hospitals plagued with serious financial problems may have managed to avoid a negative margin in a given year. The presence of negative margins over a long period of time, however, suggests deteriorating financial health (*690*).

A study of the financial condition of rural hospitals during the second, third, and fourth years of PPS (roughly 1985 through 1987) compared rural hospitals with positive Medicare operating margins (''winners'') with ones with negative Medicare operating margins (''losers'') (table 5-31). ''Winners'' were larger in size, had higher occupancy rates, had more discharges per hospital, and had substantially lower costs per patient than ''losers.'' Also, ''winner'' hospitals in the fourth year of PPS were paid by Medicare slightly less per discharge than ''losers,'' leading the study to conclude that cost per patient, not Medicare payments, was the ''primary determinant'' of whether a rural hospital was profitable (*696*).

About 44 percent of all ''loser'' hospitals would have ''broken even'' on Medicare patients (Medicare revenues at least equal costs) in PPS year 4 if they had: 1) received up to 10 percent more revenue per Medicare discharge, or 2) lowered their cost per discharge an equal proportion. Another 25 percent of ''loser'' hospitals would have achieved break-even status if they had obtained up to 20 percent additional Medicare revenue (*696*). These estimates only apply to additional revenues needed for rural hospitals to break even serving Medicare patients; it is not clear what impact the added Medicare revenues would have had on the overall operating margins and profitability of these hospitals.

Access to Capital

Many rural hospitals' physical plants and equipment, funded with Federal assistance under the Hill-Burton program in the 1950s and 1960s, may be in need of replacement, renovation, or modernization (*363*); although little is known about the extent and nature of what is required. Needed changes may include conversion of some of the facility from inpatient to other kinds of services and investment in diagnostic, therapeutic, and administrative resources. Hospitals that have had to use their cash reserves to maintain operations have fewer resources available

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[24] The patient margin compares total patient revenues (i.e., payments from all patients or insurers) with total costs. Total hospital margin compares revenues from all sources (including private contributions, local government subsidies, investment income) with total costs. Total hospital margin provides a clearer indication of a hospital's overall financial condition than patient margin.

Table 5-28—Total Mean Expenses Per Inpatient Day for Nonmetropolitan Community Hospitals[a] by Bed Size, 1987

Bed size	Nonmetropolitan hospitals	Sole community hospitals[b]	Hospitals in frontier areas	Rural referral centers[b]
6-24	$724	$948	$903	NA
25-49	585	686	535	$221
50-99	494	572	277	681
100-199	466	560	260	633
200-299	482	473	87	551
300-399	517	518	NA	513
400-499	519	429	NA	495
500 or more	566	NA	NA	584
Total	$534	$651	$518	$588

NOTE: NA = not applicable.

[a] Community hospitals defined here as all non-Federal, short-stay, nonspecialty hospitals (see app. C).

[b] As defined for Medicare purposes (see app. C).

SOURCE: Office of Technology Assessment, 1990. Data from the American Hospital Association's 1987 Annual Survey of Hospitals.

Table 5-29—Total Expenses Per Nonmetropolitan Community Hospital[a] by Ownership and Bed Size, 1987

	Type of Ownership					
	Government		Nonprofit		For-profit	
Bed size	Number	Mean expense per hospital[b]	Number	Mean expense per hospital[b]	Number	Mean expense per hospital[b]
6-24	118	$1,262	66	$1,478	16	$1,556
25-49	423	2,474	324	3,087	70	2,825
50-99	362	5,164	432	6,448	99	6,258
100-199	165	10,787	305	14,087	69	21,080
200-299	23	25,113	102	25,874	10	22,932
300 or more	7	47,847	30	$51,378	NA	NA
Total	1,098	$5,243	1,259	$9,818	264	$7,216

NOTE: NA = not applicable.

[a] Community hospitals defined here as all non-Federal, short-stay, nonspecialty hospitals (see app. C).

[b] In thousands of dollars.

SOURCE: Office of Technology Assessment, 1990. Data from the American Hospital Association's 1987 Annual Survey of Hospitals.

to help fund such projects. Therefore, outside capital is often needed.

The sources of outside funding for capital projects in rural hospitals have changed over the years. Until the early 1970s, hospitals derived most of their capital for major purposes from Hill-Burton construction grants and charitable contributions. The Hill-Burton grant program ended at a time when charitable contributions as a proportion of capital funds were also declining. However, commercial loan programs under Section 242 of the Federal Housing Act developed in the 1970s, enabling nonprofit hospitals to dramatically improve their access to capital financing for construction and renovation projects. The creation of the Medicare and Medicaid payment programs in the 1960s also allowed hospitals to be reimbursed a share of reasonable capital costs (primarily interest and depreciation) related to the institutions' Medicare and Medicaid patient load.[25] Since 1986, however,

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[25] In some States, Medicaid does not pay hospitals for capital in the same way as Medicare (*474*).

LLANO MEMORIAL HOSPITAL

Photo credit: Peter Beeson

Some small rural hospitals built with Hill-Burton funds during the 1950s and 1960s are now in need of major renovation.

Table 5-30—Community Hospital[a] Net Patient Margins and Net Total Margins, by Hospital Location and Bed Size, 1984 and 1987

	Net patient margin[b] (percent)		Total net hospital margin[c] (percent)	
	1984	1987	1984	1987
Metro hospitals....	-1.9	-3.7	5.2	4.4
Nonmetro hospitals.	-0.9	-2.7	4.3	3.2
6-24 beds.........	-13.9	-21.5	0.9	-4.5
25-49.............	-6.5	-10.1	1.5	-0.7
50-99.............	-1.9	-3.8	3.5	2.0
100-199...........	0.5	-1.0	4.9	4.1
200-299...........	1.2	-0.3	5.5	4.4
300-399...........	1.7	-0.3	5.8	5.9
400-499...........	0.8	0.4	5.4	6.4
500 or more	-4.9	-0.5	4.8	6.0

[a] Community hospitals defined here as all non-Federal, short-term general and other special service hospitals.

[b] The net patient margin is equal to patient revenues minus total costs, divided by patient revenues, multiplied by 100.

[c] The net total hospital margin is equal to total revenues (including those from sources other than patients and insurers) minus total costs, divided by total revenues, multiplied by 100.

SOURCE: American Hospital Association, Chicago, IL, unpublished data from Annual Survey of Hospitals, 1984-1987.

Table 5-31—Comparison of Nonmetropolitan Hospitals Having Positive and Negative Medicare PPS Operating Margins, PPS Years 2 Through 4

	Hospitals during PPS 2-4[a]		Hospitals during PPS 4[b]	
	Positive margins	Negative margins	Positive margins	Negative margins
PPS revenue per discharge..	$2,674	$2,634	$2,721	$2,770
Cost per discharge......	$2,414	$2,909	$2,468	$3,121
Average hospital size (beds)....	70	63	NA	NA
Total discharges per hospital...	2,069	1,601	1,902	1,678
Staff per occupied bed...	4.95	5.29	5.14	5.51
Medicare length of stay (days).	6.54	7.08	6.42	7.17

NOTE: PPS stands for Medicare's prospective payment system. Table excludes rural referral centers, hospitals in States exempt from PPS, those with cost report periods of less than 10 months or more than 14 months, those with no Medicare discharges or more than 20,000 Medicare discharges, and those with a ratio of Medicare PPS costs-to-discharges of less than 100 or more than 15,000. NA = not available.

[a] Roughly corresponds to Federal fiscal years 1985-87.

[b] Roughly corresponds to Federal fiscal year 1987.

SOURCE: U.S. Department of Health and Human Services, Office of Inspector General, Status of Rural Hospitals Under the Medicare Part A Prospective Payment System (Washington, DC: OIG, July 1989).

hospitals have not been reimbursed for Medicare's full share (Public Law 99-509). (In 1989, Medicare paid 85 percent of capital costs (Public Law 101-239).)

The largest single mechanism of debt financing for nonprofit hospitals is now tax-exempt revenue bonds. Tax-exempt financing is inherently attractive to borrowers because the interest income is not subject to Federal tax, and thus interest rates are substantially below those of the taxable market. Such financing may be less profitable for lenders, however, and the potential for loan repayment becomes a more important consideration (*368,691*). Borrowing hospitals may be subject to greater scrutiny by these lenders, possibly adding to their difficulties in obtaining capital. Recently, smaller and declining operating margins of hospitals may have weakened their creditworthiness with lenders.

A variety of public and private financing methods have been used by rural facilities to provide the capital to fund major projects. Donations and local fund drives remain an important source of capital funding in many rural communities. Hospitals may lease expensive equipment to avoid large capital outlays. The Farmers Home Administration has been a popular source of low-cost funds for nonprofit rural hospitals, CHCs, and other health care facilities, although its application review process is often criticized as being slow and cumbersome (*251*). Rural hospitals have relied heavily on local banks for capital funding, but their often higher interest rates and tightening credit restrictions have made many less competitive with urban banks. Also, according to a 1989 survey, 18 States have established financing programs to make capital funds available to nonprofit hospitals and other facilities; at least 2 State programs focus on the particular capital needs of rural facilities. These programs' funds, however, are often narrowly restricted, and hospitals with poor credit ratings may have difficulty qualifying (*474*).

The proportion of rural hospitals obtaining new capital debt is small but growing (table 5-32). Fewer small than large rural hospitals obtained new capital debt from 1984 to 1987, perhaps because of the inability of small rural hospitals to acquire capital financing (*30*). This trend might also be explained by the increasing amounts of unborrowed funding available to small hospitals for capital projects. The amount of funds given to hospital endowments and restricted for facility construction/renovation and other purposes increased significantly for smaller rural hospitals. From 1984 to 1987, such funds rose nearly 59 percent for hospitals with 25 to 50 beds while declining 15 percent for hospitals with 100 to 199 beds (table 5-33) (*30*).

FINANCIAL VIABILITY OF COMMUNITY HEALTH CENTERS

Revenue Issues

Demand for Uncompensated Care

The number of persons receiving discounted or unpaid care in rural CHCs is also growing. A recent survey of rural CHCs reported that many CHC users were paying for services under a sliding fee scale, permitting patients with incomes up to 200 percent of poverty level to pay less than full charge (the exact amount paid is based on income and family size). In 1987, nearly one-half of all users of surveyed CHCs paid for services according to a sliding fee scale (table 5-34). The number of patients requiring subsidized service in rural CHCs in 1987 ranged from 82 percent of users in Region VI to only 7 percent in Region I (*307*).

Table 5-32—Community Hospitals[a] Acquiring New Capital Debts, by Hospital Location and Bed Size, 1984 and 1987

	1984		1987	
Hospital	Number	Percent of total	Number	Percent of total
Metro	565	18.4	729	24.2
Nonmetro	342	12.7	503	19.4
6-24 beds	11	6.0	23	12.0
25-49	84	10.5	135	16.8
50-99	114	12.2	169	18.9
100-199	94	15.5	122	22.8
200-299	24	18.3	36	26.7
300 or more	15	32.6	18	47.4

[a] Community hospitals defined here as all non-Federal, short-term general and other special service hospitals.

SOURCE: American Hospital Association, Chicago, IL, unpublished data from Annual Survey of Hospitals, 1984-1987.

The inability of rural CHCs to recoup the full charge is also reflected in the centers' overall collection rate. In 1988, just 48 percent of all charges—whether full or discounted—were collected. Regionally, rural CHC collection rates ranged from 82 percent of charges in Region I to just 26 percent of charges in Region II (*658*).

Reliance on Public Payment and Funding Sources

The proportion of rural CHC revenues that derive from public payment sources has increased noticeably in recent years. In 1984, Medicaid revenues were about 19 percent of total patient revenue; by 1988, the proportion had risen to nearly 25 percent (figure 5-5). During the same period, the proportion of total revenues collected directly from patients fell from 44 to 38 percent (*658*). These trends offer additional evidence that rural CHCs are serving increasing numbers of patients who are unable to pay for basic health care.

Despite overall increases in patient revenues, CHCs remain heavily dependent on government grant funding to cover expenses. Rural CHCs rely more heavily than others on Federal grants as a proportion of total revenue, even though the proportion has declined slightly in recent years (table 5-35) (*585*). Among rural CHCs, frontier CHCs are especially dependent on Federal funds. For the years 1985 through 1987, 30 frontier centers surveyed in

Table 5-33—Aggregate Funds[a] Given to Endowments or Available for Plant Replacement/Expansion and Other Restricted Purposes in Community Hospitals[b], by Hospital Location and Bed Size, 1984-87

Hospital	1984	1985	1986	1987	Percent change 1984-87
Metro	$5,175.3	$5,231.0	$5,736.0	$6,021.2	16.3
Nonmetro	848.5	915.9	903.7	879.0	3.6
6-24 beds	6.3	4.5	8.1	9.1	44.4
25-49	58.0	79.7	98.4	92.0	58.6
50-99	193.5	218.6	247.9	260.7	34.7
100-199	360.7	389.6	346.6	305.0	-15.4
200-299	160.8	159.3	143.6	153.8	-4.4
300 or more	69.1	64.1	59.1	58.4	-15.5

[a] In millions of dollars. Only fund balances (balance remaining after subtracting hospital liabilities from assets) are reported.

[b] Community hospitals defined here as all non-Federal, short-term general and other special service hospitals.

SOURCE: Annual Survey of Hospitals, Chicago, IL, unpublished data from Annual Survey of Hospitals, 1984-1987.

Table 5-34—Patients Requiring Subsidies in Rural Federally Funded Community Health Centers (CHCs), by Region, 1987

Region[a]	Total clinic users	All sliding fee users	Percent of total users
I	9,480	640	7
II	9,010	1,480	16
III	6,545	1,662	25
IV	8,811	5,541	63
V	9,045	3,117	34
VI	9,455	7,732	82
VII	5,004	1,504	30
VIII	4,855	3,068	62
IX	18,300	6,975	38
X	6,522	4,861	75
Total	8,776	4,311	49

NOTE: Users are averages per center. Rural CHCs are those identified by the U.S. Department of Health and Human Services regional offices that approximate a center's location in a nonmetropolitan area.

[a] Federal Department of Health and Human Services regions (see app. F).

SOURCE: Joint Rural Health Task Force of the National Association of Community Health Centers, Washington, DC, and the National Rural Health Association, Kansas City, MO, Community Health Centers and the Rural Economy: The Struggle for Survival, December 1988.

5 States needed Federal grants to cover about 65 percent of their operating expenses (*204*).

The amount of Federal dollars granted to rural CHCs has been significantly less in recent years than the amount of funds received by urban CHCs.[26] According to a recent analysis, rural CHCs in 1986 received nearly 60 percent fewer Federal grant dollars per center and 15 percent fewer grant dollars per patient than did urban CHCs (table 5-36).[27] From 1983 to 1986, the average amount of grant funds per patient in rural CHCs declined slightly, compared with an increase of 27 percent in per-patient funds to urban CHCs (*272*). It is difficult, however, to know whether rural CHCs receive inappropriately less Federal funding than urban CHCs without analyzing in more detail differences among centers in such factors as:

- patients' abilities to pay full charges;
- dependency on direct patient revenues (revenues from nongrant sources);
- scope and costs of center services and operations (e.g., extent of on-site ancillary services); and
- severity of health problems in patients served.

Costs and Operating Margins

As with hospitals, total expenses for rural CHCs have been rising faster than total revenue. Total expenses increased 19 percent between 1986 and 1988, compared with about 16 percent for total operating revenue (see table 5-35). In 1986, total revenue exceeded expenses in rural CHCs by $8 million—about $21,000 per center; by 1988, the margin was nearly eliminated. The proportion of

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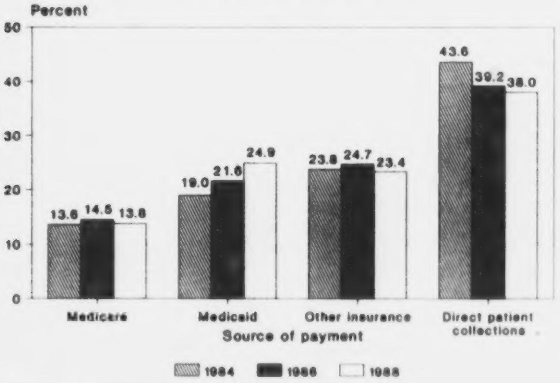
[26] Differences in the proportion of basic grant monies distributed to rural and urban community/migrant health centers have slowly lessened since the mid-1980s (*660*).

[27] Rural CHC grantees represent over 60 percent of the total CHC grantees, but they serve about the same number of users as urban CHC grantees (*660*).

Figure 5-5—Sources of Payment for Services in Rural Federally Funded Community Health Centers, 1984, 1986, and 1988[a]



NOTE: Total may not equal 100 percent due to rounding.

[a]Total payments were $105 million in 1984, $128 million in 1986, and $161 million in 1988.

SOURCE: Office of Technology Assessment, 1990. Data from U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Care Delivery and Assistance, Rockville, MD, unpublished 1984-88 data for rural community health centers from the BCRR File, provided by E. Sullivan, 1989.

Table 5-35—Community Health Center (CHC) Revenue and Expenses, 1986 and 1988

	1986	1988	Percent change 1986-88
Number of CHCs			
Rural	382	319	-16.5
Total	600	526	-12.3
Total operating revenue[a] (in millions of dollars)			
Rural	$356	$415	16.5
Total	$877	$997	13.7
Percent Federal grants of total revenue			
Rural	52%	47%	-9.6
Total	48%	43%	-10.4
Total expenses (in millions of dollars)			
Rural	$348	$414	19.0
Total	$866	$998	15.2

NOTE: Definitions used by U.S. Department of Health and Human Services regional offices to identify CHCs as rural or urban approximate a center's location in either a nonmetropolitan or metropolitan area.

[a]Total operating revenue includes both revenue from patient charges and nonpatient revenue such as Federal grant funds.

SOURCE: E. Sullivan, Bureau of Health Care Delivery and Assistance, Health Resources and Services Administration, U.S. Department of Health and Human Services, Rockville, MD, personal communication, January 1989.

revenue derived from Federal grant funds dropped by nearly 10 percent from 1986 to 1988, and the drop was barely balanced by the 26 percent increase in patient revenue for the period (see figure 5-5 and table 5-35) (*585,658*).

FACILITY CLOSURES

Facilities that cannot generate sufficient revenue to maintain their financial viability eventually close.[28] Where alternative sources of care are not easily available, facility closure could severely limit access to critical services by people living in the community. Where services are duplicative, on the other hand, facility closure may actually allow local health care resources to be allocated for better use. The following section describes the trends in rural facility closures and their potential consequences for access to care and general efficiency of the health delivery system.

Number of Hospital Closures

Rural community hospital closures totalled 237 from 1981 through 1989, with annual numbers rising steadily for most of that time (figure 5-6). Since 1986, more rural than urban hospitals have closed; in 1989, rural hospital closures represented over two-thirds of all community hospital closures (*328*). A recent report predicts that, if these trends were to continue, 40 percent (about 2,700) of all U.S. hospitals would close or convert to other health care purposes by the year 2000 (*415*). Only three States (Rhode Island, Vermont and Wyoming) and the District of Columbia had no hospitals close between 1980 and 1989 (*33,116*).

Available figures on hospital closures are not always complete and useful measures of changes in access to basic health services. Annual AHA numbers on community hospital closures include as "closed" all hospitals that no longer provide acute inpatient care (as of the end of the year). Some of these hospitals may still have an acute-care license, or they may have remained in operation as a

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[28] There may be reasons other than financial hardship for the closure of health care facilities (e.g., government regulation, facility mergers).

Table 5-36—Geographic Distribution of Community Health Centers and Federal Funding, 1983-86

Location	Year 1983	 1984	 1985	 1986
	Number of community health centers[a]			
Rural	366	396	390	365
Urban	201	210	212	215
	Funding (in millions of dollars)			
Rural	$147	$135	$149	$162
Urban	148	213	227	234
	Average funding per center (in thousands of dollars)			
Rural	$402	$341	$383	$444
Urban	736	1014	1071	1088
	Average funding per patient (in dollars)			
Rural	$69	$60	$65	$68
Urban	55	77	81	80

NOTE: Definitions used by U.S. Department of Health and Human Services regional offices to identify CHCs as rural or urban approximate a center's location in either a nonmetropolitan or metropolitan area.

[a] Number varies slightly from reported figures of the U.S. Public Health Service.

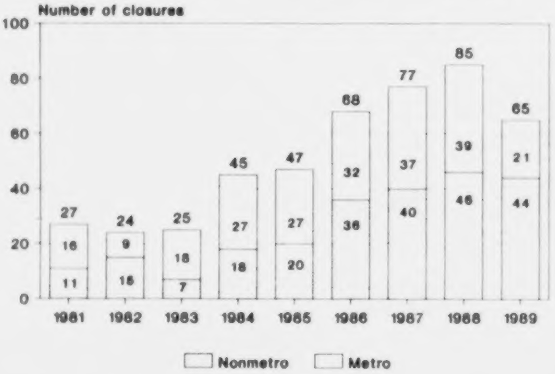
SOURCE: R. Horner, "Impact of Federal Primary Care Policy in Rural Areas: Empirical Evidence From the Literature" The Journal of Rural Health 4(2):13-27, July 1988.

specialized hospital (e.g., a psychiatric facility) or converted to another type of health care facility (e.g., nursing home or ambulatory care clinic) (*178*). One-half of all rural hospitals that closed in 1987 had reopened as some kind of health care facility by May 1989 (see table 5-37) (*692*). At least one new rural hospital opened in 1988 (*178*).

Characteristics of Closed Hospitals

The typical recently closed rural hospital is small, for-profit, and located in the South. All of the 40 rural hospitals that closed in 1987, for example, had fewer than 200 beds; 65 percent of them had fewer than 50 beds. For-profit hospitals accounted for 40 percent of closed facilities in that year, compared with 35 percent for private nonprofit hospitals and 25 percent for government-owned hospitals (*33*). In 1988, rural hospitals in the South Atlantic, East South Central, and West South Central census regions accounted for 70 percent of all rural closures. Texas led all States with nine rural hospital closures (*382*).

Figure 5-6—Closure of U.S. Community Hospitals by Metropolitan/Nonmetropolitan Status, 1981-89



SOURCE: Office of Technology Assessment, 1990. Data from P. Kralovek, Hospital Data Center, American Hospital Association, Chicago, IL, personal communication, April 1990.

Rural hospitals that closed in 1987 had significantly lower occupancy rates than both closed urban hospitals and all open facilities (table 5-37).[29] In interviews with State and local officials familiar with the closed facilities, factors most often related to closure for both rural and urban hospitals were declining occupancy and the resulting declines in revenue and increases in per-case costs (*692*).[30] Receiving urban PPS payment rates would have increased revenue and helped some of the closed hospitals, but the closed hospitals as a group would still have had negative total hospital and Medicare operating margins (*694*).

In a survey of 29 administrators of rural hospitals that closed in 1987, competition from other hospitals was cited as a key factor in closure by nearly 70 percent (table 5-38) (*33*). A study of rural hospitals for the period 1980 through 1987 found that closed rural hospitals were more often located in counties with many other hospitals and high ratios of hospital beds to population (*409*). Closed hospitals had also offered fewer services, had had proportionately more long-term care units, and were more likely to

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[29] This report defined closed facilities as those no longer providing general, short-term acute inpatient care. Hospitals closing and reopening, and those merging or sold to other hospitals in which the hospital remained open for acute inpatient care, were not included, resulting in fewer "closures" than implied from AHA data.

[30] Similar characteristics were present for rural hospitals closing in 1988 (*693*).

Table 5-37—Characteristics of Community Hospital Closures in 1987, by Hospital Location

	Nonmetro	Metro
Total hospitals closed[a]	37	32
Percent of all hospitals	1.5	1.2
Percent closed with under 50 beds	76	47
Occupancy rate (percent):		
Closed hospitals	21	30
All hospitals	37	56
Average daily patient census of closures	9.1	24.6
Percent of communities with closed hospitals having:		
General hospital within 20 miles	75	100
Emergency services within 20 miles	78	100
Current use of closed hospitals[b]		
Number reopened as hospital	4	4
Number reopened as long-term care facility	7	1
Number reopened as out-patient services/clinic	4	12
Number reopened as specialty treatment facility	3	3
Number vacant	20	14

[a] Hospitals that stopped providing general, short-term, acute inpatient services in 1987. Hospitals closing and reopening, or merging or sold to other hospitals in 1987 are not included.

[b] As of May 1989. Sums are greater than total number closed due to 8 of the 69 hospitals providing more than one service as another healthcare facility.

SOURCE: U.S. Department of Health and Human Services, Office of Inspector General, Hospital Closure: 1987, (Washington, DC: OIG, May 1989).

Table 5-38—Factors Related to Hospital Closure in 1987 as Reported by Nonmetropolitan Hospital Administrators[a]

	Number reporting	Percent reporting
Fewer admissions	28	96.6
Fewer days of care	28	96.6
Annual operating losses	25	86.2
Competition from other hospitals	20	69.0
Reduced size of medical staff	19	65.5
Lack of generosity of Medicaid program	13	44.8
Lack of competency of top management	12	41.4
Service cutbacks arising from Medicare PPS[b]	11	37.9
Employee cutbacks arising from Medicare PPS[b]	10	34.5
Unprofitable ancillary services	10	34.5
Loss of key staff	10	34.5
High numbers of uninsured patients	9	31.0
Total respondents	29	

NOTE: Reasons reported by less than 30 percent of administrators are not listed.

[a] Includes responses by 29 administrators.

[b] PPS = Prospective Payment System.

SOURCE: American Hospital Association, Rural Hospital Closure: Management and Community Implications (Chicago, IL: AHA, 1989).

be under for-profit ownership. Membership in a multihospital system was associated with a decreased risk of rural hospital closure (*409*).

Impact of Hospital Closures on Access to Care

Few generalizations can be made about the impact of rural hospital closure on access to care by local residents. Although in most cases the counties of closed hospitals contain other alternative hospitals, in some cases the closed hospital may have been the only source of care for a large area.

A study of hospital closures between 1980 and 1985 found that of the 85 rural counties with a community hospital closing, 6 were left without a hospital of any kind (*408*). A recent study found that 25 of the 156 rural community hospitals closing from 1980 to 1987 were the only general hospitals in their respective counties.[31] All so-called "monopoly" closures were of hospitals with fewer than 100 beds. Most of the hospitals were for-profit owned and had experienced marked declines in admissions before they closed (*252*).

A study of hospital closures in 1987 found that the nearest general hospital for one-fourth of the rural communities with closures was more than 20 miles away, and residents in three of the communities with closures had to travel more than 30 miles for inpatient care. However, even before the hospitals closed, many residents were already bypassing their local hospitals to use other facilities for care (*692*).

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[31] Only closures in the 48 contiguous States were included.

A recent study of rural hospitals in Minnesota judged 12 of the State's 95 small rural hospitals to be "financially vulnerable;" most had negative operating margins in each year from 1984 to 1987. Five were held to be in imminent danger of closing. If all 12 hospitals were to close, the number of rural residents located more than 30 minutes from a hospital would nearly double; about 5,800 residents would be more than 45 minutes from a hospital. (Currently, about 19,000 rural Minnesota residents in 14 counties must travel more than 30 minutes to reach the nearest hospital; fewer than 500 residents must travel more than 45 minutes (*391*).)

In addition to longer distances to receive acute care, hospital closures often lead to concerns regarding:

- *Rapid access to critical emergency and obstetric care*—Thirteen of twenty-nine administrators of closed hospitals believed that community residents needing trauma care would have greater problems receiving this service (*33*). Residents in eight of the rural communities with hospitals closing in 1987 had to travel more than 20 miles for emergency care, although all had available emergency transport services. In only one of the eight towns was ambulance travel time more than 30 minutes (*692*).
- *Maintaining access for the low-income and less mobile elderly*—Nearly three-fourths of surveyed administrators felt that closure would increase problems of access to hospital care for elderly patients; 35 percent believed that access would be impaired for many low-income persons (*33*).
- *The ability of communities to attract and maintain physicians and other providers*—Forty-one percent of the administrators believed that some community physicians would relocate due to closure (*33*).
- *Unfamiliarity with quality of care at remaining or alternative facilities.*

Efficiency of Hospital Closures

It is by no means clear that hospital closures are always undesirable. Hospitals may be in financial distress because they provide poor quality care, or because there are more hospitals than a community needs or can support. Thirty-one percent of surveyed administrators of rural hospitals closing in 1987 felt the closure of the hospital would have an overall positive benefit to the community. They believed closure would reduce the oversupply of hospital beds and the community's reliance on outdated facilities (*33*).

Most small rural hospitals have low occupancy rates. Where more than one such hospital exists in a community, closing one hospital may strengthen the position of the other(s). Closure can benefit the community as a whole by lowering costs at the remaining hospital(s) (through increased utilization), and by enabling a sufficient patient base to justify a more extensive array of services. Although studies of hospital use in the 1970s found minimal cost savings resulting from hospital consolidation, average hospital occupancy rates were higher at the time of these studies, and savings may be more likely today (*382*).

In some cases, however, use of another hospital by residents previously served by a closed hospital may not lower health care costs. If the alternative hospital provides more costly care than the closed hospital (e.g., if it is an urban hospital with high inpatient costs and receiving high payment rates), system costs may not decrease (*382*).

Even where hospitals have low utilization, there is a trade-off between health system cost savings through service consolidation and cost increases associated with reduced access to care. The trade-off becomes more critical as the distance of alternative hospitals from closing hospitals increases. If patients forego vital care because the source of acute care is inconveniently located, if they postpone care until their health problems are more expensive to treat, and if transportation and opportunity costs of reaching the new source of care are high, neither system costs nor community health may benefit from hospital closure.

Closure of Primary Care Facilities

Little is known about closures of primary care facilities, although some data for the 1980s are available. The number of federally supported CHCs in rural areas has declined in recent years. From 1984 to 1988, 75 CHC grantees closed and 51 opened (table 5-39). Most closures occurred in 1985 and 1986 during an active time for mergers of centers. Both activities may have been influenced by Federal policies that were intended to enhance affiliations among CHCs and other providers and

Table 5-39—Changes in Rural Community Health Center Grantees: Mergers, Closures, and New Starts, 1984-88

Year[a]	Mergers[b]	Closures[c]	New starts[d]	Went private[e]	Total
1984......	1	14	12	0	27
1985......	12	15	7	0	34
1986......	21	31	18	0	70
1987......	8	11	11	0	30
1988......	2	4[f]	3	2	11
TOTAL...	44	75	51	2	172

NOTE: Definitions used by U.S. Department of Health and Human Services regional offices to identify CHCs as rural approximate a center's location in a nonmetropolitan area.

[a] Federal fiscal year.

[b] Those merging with another CHC.

[c] Those closing or phasing out operations.

[d] New CHCs beginning operations that year.

[e] Those choosing to relinquish Federal support and become private.

[f] Including 1 that phased out to become part of a hospital.

SOURCE: E. Sullivan, Bureau of Health Care Delivery and Assistance, Health Resources and Services Administration, U.S. Department of Health and Human Services, Rockville, MD, personal communication, January 1989.

improve center efficiency (*585*). No information is available on the areas where rural CHCs closed, or the reasons for closure.

A study of nurse practitioner and physician assistant (NP/PA) satellite centers established in the 1970s suggests that some of the reasons for closure of primary care facilities may have changed over time. In a national sample of 44 rural NP/PA satellite centers surveyed between 1975 and 1985, 12 had ceased to function, leaving their communities without immediate sources of primary care. Of the eight centers that closed before 1979, reasons given for closure included poor financial management, death of the backup physician, relocation of the town's major employer, the center's purchase by a physician who later left the area, and establishment of a new, physician-staffed clinic nearby. The average population of these communities (in 1980) was 1,960, yet by 1984, physician practices had located in all of them. For the four centers that closed after 1979, however, the major reason given was low service utilization. The average local population was 489, and no new providers were expected to locate in these towns soon (*103*).

POPULATION MOBILITY AND ACCESS TO CARE

Patient Outmigration

Regardless of whether local hospitals or clinics have closed, many rural residents have already decided to leave their local communities to obtain some or all needed services. Such action may be either for the purpose of receiving care locally unavailable (e.g., highly sophisticated tertiary care), or because residents choose not to use local services. A few studies have attempted to document this "outmigration" for hospital services in rural areas.

A 1988 study examining the patient travel patterns of Medicare beneficiaries in rural areas suggests that a significant number of patients relied on out-of-area institutions for inpatient care. The study compared rural hospitals' actual share of the number of Medicare residents in their market area who obtained care at any hospital. When a very narrow definition of a hospital's market area was used,[32] 64 percent of all rural hospitals provided at least one-half of the total inpatient discharges of Medicare patients residing in their market area. Just 7 percent of rural hospitals (195) provided as much as 75 percent of the inpatient care used by Medicare patients from their narrow market area. When the widest market area definition was used, rural hospitals' market shares were smaller; only 46 percent of rural hospitals provided at least one-half of the inpatient discharges of area Medicare patients. For the most isolated hospitals—those that were 50 miles or more from the nearest hospital or were often inaccessible due to seasonal weather conditions—market shares were still surprisingly small. Using the widest market definition, fewer than 6 percent of these hospitals delivered as much as 75 percent of the inpatient care of area Medicare beneficiaries (*589*).

A New York study of travel patterns for inpatient care by rural residents during 1983 found that 71 percent of all hospitalizations of rural residents were in the patients' own county (table 5-40). The oldest rural residents were the least likely to travel for care;

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[32] The narrowest definition of a hospital's market area included only the ZIP codes nearest the hospitals and from which the facilities drew at least 50 percent of their Medicare patients. The widest definition included ZIP codes from which the hospital drew at least 75 percent of its Medicare patients.

Table 5-40—Sources of Inpatient Care for Rural Residents in New York State, 1983

	Metro hospitals	Nonmetro hospitals out of county	Nonmetro hospitals, in county
All nonmetro patients:			
Percent of discharges...	19.3	9.7	70.9
Percent of days.........	22.3	9.1	68.7
Nonmetro patients over age 75:			
Percent of discharges...	10.2	8.0	81.7

SOURCES: M. Merlis, "Rural Hospitals," U.S. Congress, Congressional Research Service, Washington, DC, no. 89-296 EPW, May 1989; and C. Hogan, "Patterns of Travel for Rural Individuals Hospitalized in New York State: Relationship Between Distance, Destination and Case Mix," Journal of Rural Health 4(2):29-41, July 1988.

82 percent received care in their home county. Nearly two-thirds of all those who left their own county for inpatient care traveled to urban hospitals (*265*). Rural hospitals in New York have an abnormally high occupancy rate (84 percent in 1983, compared with 66 percent for rural hospitals nationally), so these outmigration rates are probably lower than would be found in other States (*382*).

Results of a survey of households in the service areas of six rural Washington hospitals likewise suggest that there are different outmigration patterns for different segments of the population. In this study, higher income households with private insurance were more likely than other households to leave their local community for hospitalization (table 5-41) (*237*).

Of those surveyed that had used a hospital outside their rural community, a large proportion (ranging from 41 to 63 percent) stated that the service they needed was unavailable in their local hospital. A similar proportion of respondents stated that they had been referred to the nonlocal hospital either by a local or nonlocal physician. Residents' use of a local physician was also associated with increased likelihood of using a local facility. When asked whether they would use the local hospital for specific medical conditions, respondents indicated less willingness to use the local hospital for more apparently complex services. Only one-fourth would not use the local hospital for the care of a broken arm, but 90 percent would migrate elsewhere for cancer care (*237*). Similar usage patterns were observed in a recent five-State study that found that most rural Medicare beneficiaries needing specialized "high-tech" care traveled to urban hospitals (*134*).

MINIMUM MAINTENANCE ROAD

Photo credit: Peter Beeson

Poor road conditions in rural areas can lengthen travel times to health care facilities.

Geographic Limitations to Access to Care

Time and Distance Between Hospitals

Geographical access to health care remains a critical issue in many rural areas. In one study that examined distances and travel times between rural hospitals, 84 percent of all rural hospitals were within 30 road miles of a neighboring hospital (table 5-42). Only 86 rural hospitals (3 percent) were more than 50 road miles from the nearest hospital. The Mountain region, with its rugged terrain and low population density, was a clear exception to national averages; fewer than one-half of rural hospitals in that region were within 30 road miles of the nearest alternative hospital. Of the 39 percent of all rural hospitals that were the sole hospitals in their counties, nearly 70 percent were less than 30 road miles from the nearest hospital (*589*).

Travel time is often considered a better indicator of distance between hospitals than road mileage,

Table 5-41—Household Characteristics for "Community C" by Hospital Utilization Experience, 1984-85

Household characteristics	Hospital Utilization				
	Local hospital only	Local and nonlocal hospital	Nonlocal hospital only	Not hospitalized	Overall
Income $25,000 or more (percent)	21.6	28.2	35.9	24.4	26.3
All members 60 years old or older (percent)	26.1	26.5	20.7	24.7	24.5
Private insurance is expected principal hospital payer (percent)[a]	44.3	44.9	55.0	45.4	46.8
Less than 30 minutes from local hospital (percent)[b]	87.9	91.0	70.5	80.1	80.0
More than 10 years living in community (percent)	58.8	57.1	62.2	57.2	58.4
Personal physician status (percent):					
Local personal physician	79.9	74.3	34.3	56.8	59.5
Nonlocal personal physician	11.6	6.6	11.1	22.4	16.4
No personal physician	8.5	19.1	54.5	20.8	24.1
Number of respondents	228	136	203	596	1,139
(percent of households)	20.0	11.9	17.8	52.3	100.0

NOTE: "Community C" refers to one of the rural communities in Washington included in a study of rural hospital utilization.

[a] Response is for the respondent but is utilized as a proxy for the household.

[b] Data are from "Community E". These data are typical of all the communities except "Community C" where there were no meaningful differences.

SOURCE: G. Hart et al., Rural Hospital Utilization: Who Stays and Who Goes? Rural Health Working Paper Series, 1(2), WAMI Rural Health Research Center, University of Washington School of Medicine (Seattle, WA: March 1989).

Table 5-42—Regional Differences in Distances From Nonmetropolitan Hospitals to the Nearest Hospital

Census region	Road miles to nearest hospital					Total nonmetro hospitals
	Less than 20 miles[a]	20-29 miles	30-39 miles	40-49 miles	50 or more miles	
New England	49	21	8	4	3	85
Mid Atlantic	69	30	5	2	0	106
South Atlantic	225	98	25	12	1	361
East North Central	263	78	18	4	2	365
East South Central	233	74	20	2	0	329
West North Central	300	211	64	14	9	598
West South Central	261	148	35	11	4	459
Mountain	68	47	62	33	50	260
Pacific	86	21	15	8	17	147
Total	1,554	728	252	90	86	2,710

NOTE: Distances are approximately those from one hospital to the nearest hospital. Hospitals are those included in the 1984 American Hospital Association's Annual Survey of Hospitals.

[a] Includes all hospitals less than 15 "crow-fly" miles to the nearest hospital. These hospitals are all assumed to be less than 20 road miles from the nearest hospital.

SOURCE: Systemetrics/McGraw Hill, "Small Isolated Rural Hospitals: Alternative Criteria for Identification in Comparison with Current Sole Community Hospitals," contract report prepared for the Prospective Payment Assessment Commission, Washington, DC, June 1988.

Table 5-43—Travel Time to Nearest Hospital for Nonmetropolitan Hospitals That Are More Than 15 "Crow Fly" Miles From the Nearest Hospital, 1984[a]

Travel time to nearest hospital (minutes)	Number of hospitals more than 15 "crow-fly" miles from nearest hospital
Less than 30	848
30-39	402
40-44	90
45-49	52
50-54	45
55-59	31
60-89	87
90 or more	17
Total	1,572

[a]Excludes three hospitals on islands.

SOURCE: Prospective Payment Assessment Commission, Technical Appendices to the Commission's March 1988 Report (Washington, DC: U.S. Government Printing Office, 1988).

Table 5-44—Travel Time and Distance to Nearest Hospital for Nonmetropolitan Hospitals More Than Twenty-Five Miles From the Nearest Hospital, 1984[a]

Census region	Mean distance (miles)	Mean travel speed (mph)	Mean time (minutes)
New England	38	42	55
Mid Atlantic	30	42	43
South Atlantic	32	43	45
East North Central	33	48	41
West North Central	30	49	36
East South Central	32	52	37
West South Central	32	51	37
Mountain	45	49	56
Pacific	44	47	57
National average	36	49	45

[a]Includes an estimated 700 hospitals.

SOURCE: Prospective Payment Assessment Commission, Technical Appendices to the Commission's March 1988 Report (Washington, DC: U.S. Government Printing Office, 1988).

because it may more accurately reflect actual travel conditions and is a more relevant indicator of access (e.g., elapsed time *en route* in emergency situations). In the above study, of the 42 percent of hospitals more than 15 "crow fly" miles from the nearest hospital (*589*), over one-half were less than 30 minutes from that hospital (table 5-43). Over 85 percent were less than 45 minutes from the closest hospital. For rural hospitals more than 25 road miles from the nearest hospital, there are extreme regional differences in travel time to the closest hospital. Rural hospitals in this category that were located in the Mountain and Pacific regions had average travel times of about 56 minutes, while travel times between rural hospitals in the West North Central region averaged 36 minutes (table 5-44) (*488*).

Sole Community Providers

In some rural communities, a single facility is the sole source of locally available, hospital-level health care. As of 1987, there were 367 Medicare-designated SCHs (see app. C), and the vast majority were located in rural areas.[33] Not all rural hospitals that qualify for SCH designation have applied for it, and some have elected to drop their designation because they have not found it financially advantageous. There is little evidence that the criteria for paying isolated rural hospitals have been sufficient to stabilize their financial condition (see p. 23); nor do the criteria appear satisfactory in ensuring accessibility to inpatient care and other services.[34]

A 1988 study found that, by current SCH designation criteria, most eligible hospitals were not designated and most designated hospitals did not meet the criteria. Using 1984 hospital data, the study found that 211 rural hospitals were eligible for SCH status within the continental United States based on the criteria (table 5-45). Of the 308 rural hospitals actually designated as SCHs, only 92 met the designation criteria, suggesting that most designated hospitals may actually be within reasonable proximity of other hospitals (*488*). The current number of SCHs amounts to about 14 percent of rural hospitals (*625*).[35] If all eligibles were designated, the number of rural SCHs would expand from 308 to 427, or about 16 percent of all rural hospitals in 1987 (*488*).

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[33] Some urban hospitals were "grandfathered in" as sole community hospitals at the time the new payment system was implemented.

[34] In 1989, Congress modified criteria for qualification and payment of SCHs (Public Law 101-239)(see ch. 3). It lowered the minimum distance that a SCH must be from another hospital (certain exceptions would be considered), required that new eligibility criteria based on travel time be developed, and required Medicare payments to be more effectively matched to SCH costs.

[35] This percentage is based on the assumption that all of the 367 SCHs in 1987 were rural.

Table 5-45—Regional Distribution of Nonmetropolitan Hospitals by Sole Community Hospital (SCH) Status, 1984

Census region	SCH eligibles		Current SCH		Eligible current SCH	Eligible not current SCH	All nonmetro hospitals
	Number	Percent	Number	Percent	Number	Number	Number
New England	29	13.2	22	7.1	14	15	85
Mid Atlantic	17	7.3	1	0.3	NA	17	106
South Atlantic	9	3.6	19	6.2	2	7	361
East North Central	31	15.5	13	4.2	5	26	365
East South Central	3	1.8	11	3.6	1	2	329
West North Central	19	10.0	60	19.5	12	7	598
West South Central	10	5.0	24	7.8	3	7	459
Mountain	71	33.6	110	35.7	43	28	260
Pacific	22	10.0	48	15.6	12	10	147
Total	21	100.0	308	100.0	92	119	2,710

NOTE: NA = not applicable.

SOURCE: Prospective Payment Assessment Commission, Technical Appendices to the Commission's March 1988 Report (Washington, DC: U.S. Government Printing Office, 1988).

Most currently designated SCHs are located in the West.[36] The South has relatively few, probably because its rural hospitals are closer together (see table 5-44) and are less affected by extreme weather conditions. As a result, neither eligible nor current SCHs appear to serve a significant number of low-income rural areas (which are predominant in the South Atlantic and Central regions) (*739*).

This study also simulated the impact of four major alternative eligibility criteria. These included:

- *Substituting travel time for road mileage*—A 40-minute minimum travel time would add 197 hospitals unable to meet the current 50-mile requirement, bringing the total designated SCHs to 408.
- *Using sole-county provider status as a measure of isolation*—Including all community hospitals that are the sole provider in the county or are located 25 miles or 40 minutes from another hospital would make a total of 1,224 rural hospitals eligible to be SCHs.
- *Being located in a low-density frontier county* with 6 or fewer persons per square mile would qualify only 4 hospitals.[37]
- *Serving Medicare beneficiaries in medically underserved areas*—This criterion is intended to measure mobility of the population and other social needs for hospital services. It was tested in only four States.

The study concluded that relatively few rural facilities are physically remote from other hospitals, although for other reasons (e.g., differences in community need and hospital services) other hospitals may also be irreplaceable health care facilities (*739*).

Some rural community clinics are the sole providers of primary care services to their communities; however, such status has not allowed them any special protection by the Federal Government. Federally supported CHCs, and some rural clinics that receive State support in such States as North Carolina and Oregon, often serve remote communities unable to attract and support full-time physician practices or other health care providers. Little is known about the extent and nature of these sole community primary care facilities, or how critical their presence is to preserving access in areas affected by geographic isolation.

Frontier Areas

People living in frontier areas, where the nearest health care facility may be a great distance away, are faced by special problems of physical access to health care. Hospitals in frontier areas tend to be small in number and capacity, and the supporting

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[36] In 1987, 102 SCHs were located in frontier areas, all in the western half of the country. Nearly 37 percent of all frontier hospitals were designated SCHs (*625*).

[37] The number of hospitals identified by this analysis are considerably fewer than the number of hospitals shown to exist by OTA analyses in frontier areas (277 hospitals in areas with 6 or fewer persons per square mile) as noted earlier.

Table 5-46—Characteristics of Four Frontier Hospitals[a]

Hospital	Number of licensed beds	Ownership and management	Distance to nearest hospital next level of care by size: 50-100 beds	100-200 beds	200 or more beds	Population of county and density (1980)
Allen Memorial Hospital Moab, UT	38 acute-care[b]	County Hospital District	108 miles	120 miles	210 miles	8,241 2.2 persons per square mile
Garfield Memorial Hospital Panguitch, UT	20 acute-care[b]	Intermountain Health Care (nonprofit multi-hospital system)	0	110 miles	200 miles	3,673 .7 persons per square mile
Nye General Hospital Tonopah, NV	21 acute-care; 24 long-term care	County Hospital District	120 miles	210 miles	210 miles	9,048 .5 persons per square mile
William Bee Ririe Hospital Ely, NV	43 acute-care[b]	County Hospital District	189 miles	250 miles	250 miles	8,167 .9 persons per square mile

[a]Those located in counties with less than six persons per square mile.
[b]Participates in swing-bed program.

SOURCE: D. Berry et al., "Frontier Hospitals: Endangered Species and Public Policy Issue," Hospital and Health Services Administration 33(4):481-496, Winter 1988.

population is sparse and sometimes widespread. Berry et al. examined characteristics of four frontier hospitals in two States, including distances to the nearest hospital.[38] For three of the four facilities (all with fewer than 50 beds), the nearest hospital of any size was 108 miles away (table 5-46). Larger hospitals (with 200 or more beds), likely to provide more secondary and tertiary levels of inpatient care, were at least 200 miles from any of the four frontier hospitals. The authors noted that, given the facilities' frontier location, travel to the nearest hospital may be affected by poor road conditions and natural barriers as well as by distance. The three county-affiliated hospitals—all sole providers of hospital care and two located in counties with population densities of less than one person per square mile—were all experiencing financial problems and low occupancy (*89*).

As with hospitals, CHCs require a sufficient population to support them—a problem in many frontier areas. In 1989, there were 59 federally supported CHC delivery sites in frontier areas (table 5-47), about 7 percent of all rural CHC service sites (*585*).[39] No data are available on the population base of these centers or alternative sources of primary care in the areas they serve. As noted earlier, some CHCs serving very sparse, isolated populations need substantial ongoing subsidies to survive. However, many of the operating requirements important to receiving vital Federal funding (e.g., minimum physician productivity standards) are difficult to meet for some frontier centers, possibly limiting grant support and their overall development (see ch. 7). (In 1988, congressional reauthorization of the CHC program required that special consideration be given to supporting CHCs in frontier areas (Public Law 100-386).)

SUMMARY OF FINDINGS

Rural Community Hospitals

Most rural hospitals are small (nearly three-fourths have fewer than 100 beds) and nonprofit. In 1988, they represented 46 percent of all community hospitals. About 14 percent of all rural hospitals

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[38] The characteristics of these hospitals, including their distance from other hospitals, are not necessarily typical of frontier hospitals in general.

[39] This figure represents the number of federally funded CHC service delivery sites in frontier areas, not the actual number of grantees (many CHC grantees have multiple sites). One source reports that there were 17 CHC grantees in frontier areas in 1986 (Senate Report 100-343). The completeness of these figures is questionable; efforts are being made by the Federal Government and frontier health officials to improve the data's accuracy.

Table 5-47—Federally Funded Community Health Center Service Sites Located in Frontier Areas[a] by State, 1989

States	Number of frontier health centers
Colorado	8
Idaho	8
Nevada	6
Texas	6
South Dakota	5[b]
Montana	4
New Mexico	4
Utah	4
Oregon	3
Washington	3
Minnesota	2
Wyoming	2
Arizona	1
California	1
North Dakota	1
New York	1
Total	59

NOTE: Number of community health centers indicate the total number of center service sites, including federally funded grantees.

[a] Frontier is defined as counties with six or fewer persons per square mile.

[b] Including 1 site transferred to the Indian Health Service in December 1989.

SOURCE: E. Sullivan, Bureau of Health Care Delivery and Assistance, Health Resources and Services Administration, U.S Department of Health and Human Services, Rockville, MD, personal communication, April 1989.

were designated SCHs in 1987; hospitals located in frontier areas represented 11 percent of all rural hospitals and were smaller than other rural hospitals (two-thirds had fewer than 50 beds).

From 1984 to 1988, inpatient admissions in rural hospitals dropped 21 percent (compared with less than 8 percent for urban hospitals). ***By 1987, inpatient occupancy levels were around 50 percent for all rural hospitals, becoming smaller as hospital size decreased*** (31 percent for hospitals with under 25 beds). Hospitals in frontier areas had significantly fewer admissions and numbers of staff physicians than other similar-sized rural hospitals.

Rural hospitals are providing increased amounts of outpatient and long-term care services. From 1984 to 1988, outpatient visits increased about 34 percent (compared to 26 percent for urban hospitals). By 1988, one-half of all hospital surgery was done on an outpatient basis; over 90 percent of all hospitals in 1987 performed ambulatory surgery. Also in 1987, of the 25 percent of hospitals that had a separate long-term care unit, long-term care beds constituted nearly one-half of total hospital beds. Frontier hospitals as a group had more long-term care units (40 percent) and less ambulatory surgery (77 percent) than other rural hospitals. Anecdotal information indicates that competition is increasing between rural and urban providers and locally among hospitals, physicians, and other providers.

As inpatient demand has declined, the receipt of revenue has become more of a problem. From 1984 to 1987, uncompensated care delivered by rural hospitals rose over 26 percent (increasing faster for smaller facilities), averaging over $0.5 million per hospital in 1987. Average Medicare payments, which make up over 40 percent of patient revenue, were actually slightly lower than average costs in 1987[40] in rural hospitals. Although they represent only about 9 percent of patient revenue, Medicaid payments are often significantly below related costs. In addition, as outpatient services (e.g., ambulatory surgery) have increased, hospitals (especially smaller facilities) have become more dependent on outpatient revenue, leading to concern over proposed future changes in payments for these services.

Total expenses have risen faster than total revenues (the smallest hospitals show the largest gap), leading to the decline in both patient and total hospital operating margins. ***By 1987, nearly all rural hospitals had negative patient margins; those with under 50 beds also suffered negative total margins.***

Rural Community Health Centers

The number of CHC grantees fell 20 percent from 1984 to 1988, varying widely across regions, although the number of total CHC service sites remained relatively unchanged. In 1988, rural grantees made up 61 percent of all CHCs. From 1984 to 1988, patient visits to rural CHCs rose nearly 19 percent, again showing significant regional differences.

Most of the increase in CHC utilization appears to be for under- and uncompensated care. In 1987, nearly one-half of all CHC users received discounted care. Increasingly, CHCs are deriving more of their revenue from Medicaid patients and less from private pay patients. They also remain heavily dependent on Federal grant funds (which make up nearly one-half of total revenue). Total expenses have also increased faster than total revenue, nearly eliminating by 1988 any positive total operating margins for the average center.

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[40] The actual period of time is hospitals' fourth year under Medicare's prospective payment system.

Local health departments (LHDs) in rural areas are thought to be a valuable source of basic health services for many residents. However, little is known about the numbers and operating characteristics of rural LHDs.

Access to Care

By 1986, the ratio of community hospital beds to population was about the same overall in rural and urban areas. In 14 States, bed-to-population ratios were higher in rural areas.

Closures of financially troubled rural hospitals have increased; over twice as many closed in 1989 as in 1985. Most of the recent closures have been of small facilities with low inpatient utilization and occupancy, and most communities of closed hospitals appear to have reasonable access to emergency and acute care. A few closures, however, have been in communities with no local alternatives.

"Outmigration" for hospital care appears to be increasing among rural residents (even in isolated communities with local hospitals), although the full extent and nature of this trend is not well understood. Outmigration is occurring because either specialized care is unavailable locally or residents choose not to use locally available services.

Most rural hospitals are within close physical proximity (in terms of road miles and travel time) of another hospital, but extreme regional differences exist. Hospitals are much farther apart in less densely populated areas of the western part of the country. Most of the 367 designated SCHs are located in the western half of the Nation (102 are in frontier areas there). Only about 30 percent of all designated hospitals meet current SCH criteria.

In summary, major changes in the volume of services provided, coupled with substantial increases in the delivery of uncompensated care, have been contributors to the rising financial vulnerability of many rural hospitals and CHCs. Physical access to basic primary and hospital care remains a problem in many rural areas, particularly in less densely populated communities.

Chapter 6

Short- and Long-Term Strategies for Effective Change by Rural Providers

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Chapter 6

Short- and Long-Term Strategies for Effective Change by Rural Providers

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INTRODUCTION

The current problems for rural health care facilities and services are varied and complex, and the prognosis for rural health care delivery seems uncertain at best. The difficulties rural hospitals face, for example, are not limited to immediate concerns such as declining inpatient demand and increases in uncompensated care. Rural hospitals must also find ways to redirect their services to meet evolving community needs and changing environmental realities. This chapter will discuss approaches rural hospitals and primary care facilities have taken to altering or expanding their missions, both in the short term to strengthen operations and community support, and in the longer term to restructure the organization and delivery of services.

SHORT-TERM STRATEGIES

Local Fundraising[1]

Local fundraising has historically been a major source of capital to finance construction and renovation of rural health facilities. By one estimate, 40 percent of cash donations garnered through fundraising by rural and urban hospitals in 1988 were earmarked for construction, renovation and equipment purchases (*80*). A 1989 national survey found that more than 30 percent of responding individuals had contributed to hospitals or other health care organizations (rural and urban) within the previous 2 years, and the great majority of these were regular donors (*566*).

For some hospitals, fundraising is an important source of capital for longer term investments. For others, however, local donations and philanthropy are needed simply to sustain immediate operations. There is considerable uncertainty whether hospitals in severe financial crises have all the necessary elements to survive effectively beyond the receipt and use of such "bail-out" funds (see box 6-A). Success may be contingent on how well these resources are spent on planning for and ensuring future needs.

Establishing endowments is another strategy to raise ongoing funds. For example, Copley Hospital, a 50-bed nonprofit facility in Morrisville, Vermont, in 1988 resolved to raise a $5 million endowment for maintaining the provision of adequate indigent care and helping with its capital needs (*186*). In addition to providing some financial benefits to local donors, endowments and other planned giving arrangements may enhance the hospital's reputation in the community.

Hospitals are not the only focus of fundraising efforts in rural communities. South Gilliam County, Oregon, for example, has created a health district fund in cooperation with a local foundation to accept private donations for primary health care projects in the district. Donations may also be earmarked for specific health needs (e.g., ambulances) (*314*).

Box 6-A—Example of Local Fundraising

Hall County Hospital, a 42-bed facility in the small town of Memphis, Texas, nearly closed in 1988. Two of the three physicians on the hospital staff had recently ceased practicing, and patients began migrating 90 miles north to Amarillo for most of their care. Significant declines in patients and revenues could not be offset through local tax increases because the community was already taxed at the full legal levy to support the hospital. Instead, the town of 3,000 raised about $400,000 to maintain hospital operations. Memphis' residents had differing opinions on how to address the hospital's problem, and many were weary of spending large sums of money on the hospital. The fund drive to save the hospital appeared to revive and reunite the community. Local school rallies and support from passing truckers helped to raise the money over 3 months, leaving the hospital about $100,000 short of the $500,000 needed and the necessity of still recruiting two physicians. Local officials acknowledged that unless the town could find the two physicians, the hospital's survival remains in doubt (*79*).

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[1] Local tax support is another major source of nonpatient revenue for health care facilities (see ch. 8).

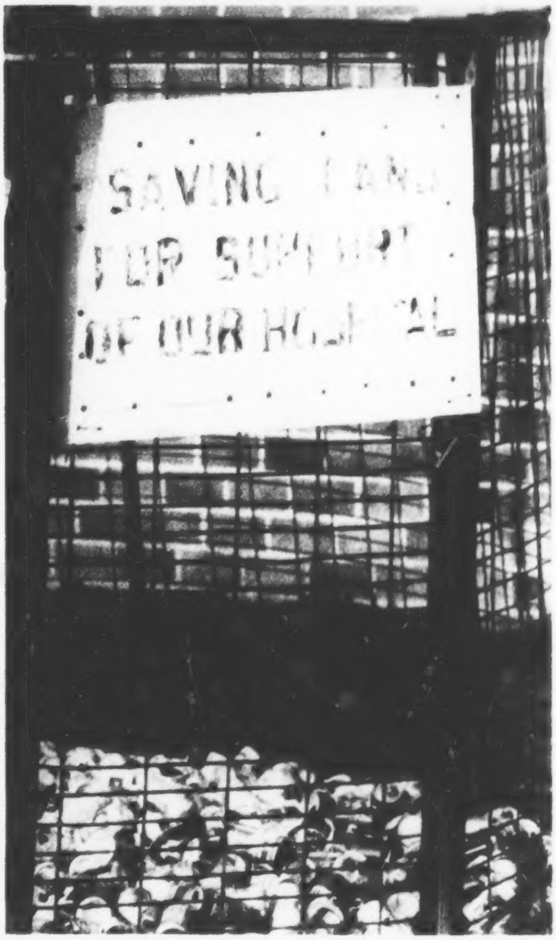

Photo credit: Gail Mooney

Even the smallest donations can help rural hospitals struggling to survive, and fundraisers can reflect a strong desire by the community to keep their hospital open.

Cost Containment

Excess capacity, small size, and unexpected variations in utilization can make cost reductions difficult to achieve in many rural hospitals. One common strategy for lowering costs has been to reduce staff. From 1980 to 1987, rural hospitals reduced the number of full-time equivalent (FTE) staff by 9 percent, while urban hospital staffing actually increased 14 percent. Both rural and urban hospitals had a decline in labor costs as a percentage of total costs (*382*).

Much of the staff reduction took place immediately after the inception of the Medicare prospective payment system; the number of FTE employees in rural hospitals dropped by 7.7 percent between 1983 and 1985 alone (*31*). Rural hospitals also increased their use of part-time staff to enhance their staffing flexibility. In recent years, the numbers of FTE staff per hospital have actually increased. Possible reasons for the increase include more severely ill patients, the growth in outpatient care and swing bed services, and longer lengths of stay (*31,462*).

A few rural hospitals, however, have continued to improve staff efficiencies. Some successful strategies include:

- planning staff size and workloads according to expected daily work volume,
- emphasizing cross-training and cross-utilization of employees to do nonclinical tasks,
- combining departments (e.g., housekeeping and engineering) to facilitate flexibility in staffing, and
- identifying appropriate uses of outside contract services for both clinical and administrative functions (*203*).

In 1988, for example, the new administrator of a 75-bed hospital in Columbus, North Carolina applied some of these strategies to lay off 10 full-time employees (a 6 percent reduction in staff). Other expenses were reduced and patient fees increased, creating a net income of $735,000 for the hospital in 1988, compared to a net loss in 1987 of $358,000 (*361*).

Many community health centers (CHCs) have also had to find ways to further reduce costs. As noted in chapter 5, increased use by patients who cannot pay for care has lowered collections in many rural CHCs. A recent survey of these centers found that most reported lowering operating costs through imposing personnel hiring freezes and layoffs, eliminating staff education programs, and reducing supply orders. Some said they were forced to eliminate certain services altogether (e.g., dental and pharmacy services) (*307*).

The cuts made by some CHCs to ensure survival have been drastic. A CHC in rural Maryland, for example, was forced into bankruptcy in the early 1980s. Facing pressures from some 900 creditors, a new administrator closed three satellite clinics, reduced staff from 100 to 25, and lowered salaries. The center has remained in operation, relying on State and local grants instead of Federal funding, and was due to make its final payment on the $1.4 million bankruptcy decision in 1989 (*108*).

Tougher Billing and Collection Practices

Hospitals appear to be increasingly aware of how improved billing and collection activity can enhance critical cash flow. Hospitals and clinics can affect delays in billing and payment by methods such as:

- submitting correct or "clean" claims to third-party payers in a timely manner, reducing the number of improperly submitted claims returned to the hospital for reprocessing;
- reducing the delay in assigning final diagnoses and completing patient charts;
- increasing the number of patients paying their bill at the time of service; and
- reducing the number of patients who incorrectly do not receive a bill.

In order to streamline the billing and collection process, one rural hospital put a single individual in charge of registration, billing, discharge, and medical records. Another hospital assigned a staff member to the task of ensuring that nurse and physician notes are properly recorded in advance of patient discharge. A third hospital trained staff to encourage payment before patients leave the hospital, resulting in 12 percent of collections made before the patients' discharge (*431*).

Some hospitals are establishing inhouse collection agencies in order to collect a higher proportion of bills, eliminate commission costs, and improve access to account information. A rural South Carolina hospital's inhouse agency has collected 22 percent of its bad debt (about $200,000 a year) that otherwise was uncollectible. When the hospital used an outside firm, it recovered only about 10 percent annually, and 40 percent of this amount was lost in commission costs (*432*).

Some CHCs have also changed their collection practices in response to the growing demand for care by the medically indigent. About 42 percent of recently surveyed centers reported that they were making changes designed to lower sliding fee use and improve collections. These changes included increasing sliding fee scale eligibility and documentation requirements, increasing the minimum fees paid under the scale, and enforcing stronger collection procedures on self-pay balances (*307*).

Strategic Planning

Rural hospitals, particularly small hospitals, may often view planning either as a luxury or a burden. It is clear now to many rural providers, however, that they must find the means to reexamine their missions and roles and improve their capacity to solve problems.

One example of efforts to improve the ability of rural hospitals to engage in such planning is the WAMI[2] Rural Hospital Project at the University of Washington. With funds from the Kellogg Foundation, WAMI recently assisted several rural communities and their hospitals to develop and implement a range of strategic planning activities. In Tonasket, Washington, for example, the Project worked in partnership with the community and its 22-bed hospital to determine the area's major health care system problems by doing area demographic profiles, community need assessments, and reviews of hospital operations. Tonasket was experiencing a depressed economy, substantial patient outmigration, and persistent physician shortages. The hospital suffered from negative operating margins, the highest percentage of uncompensated care of any hospital in Washington, weak management expertise, and patient dissatisfaction. The project facilitated the development of community teams to clarify goals and establish trust through open communication and conflict resolution, and to initiate community leadership and skill building efforts to plan ways to solve identified problems. Specific plans were made for the hospital to lower costs, increase revenues, recruit physicians, market and diversify its services, and restructure its board. Within 3 years, North Valley Hospital began showing income from operations (*45*).

Some hospital associations have also been emphasizing support for strategic planning among small and rural hospitals. In North Carolina, the hospital association, with support from a private foundation, recently opted to make planning grants available to such facilities. Of the 67 hospitals eligible for participation, 55 were expected to receive planning grants by the end of the project (*276*).

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[2] Washington, Alaska, Montana, and Idaho.

Box 6-B—Three Examples of Marketing/Public Relations Efforts

Central Plains Regional Hospital—For hospitals in small towns, "word-of-mouth" and improved visibility can play critical marketing roles. Central Plains, a 151-bed hospital in Plainview, Texas, recognized that a significant number of its local residents were migrating to Lubbock, 45 miles away, for hospital services. Central Plains' administrator decided to promote the institution's quality and convenience, especially to senior citizens unwilling to travel frequently. To do this, he joined local chapters of service organizations and provided space at the hospital for their regular meetings, started an annual health fair, and provided health programs at senior citizen centers. He also encouraged the local newspaper to print a regular column on hospital services and activities, and he personally followed up with discharged patients to ask how they enjoyed their hospital stay. He noted that these more personalized efforts appeared to have increased the local appeal of Central Plains over the last 3 years (*175*).

Mercy Medical Center—Other marketing efforts have attempted to expand the awareness of a facility's capability to a larger geographical area. Mercy Medical Center, in the isolated mountain community of Durango, Colorado (population 15,000), decided in 1987 to become more of a regional hospital. Impetus came from its need to compete with the other hospital in town, a public facility, for patients in an overbedded market. The 100-bed facility began to promote its 85-physician medical staff, $1.7 million outpatient center, magnetic resonance imager, trauma center, and high-technology emergency aircraft to 120,000 residents living over 7,500 square miles in 4 States. The hospital used advertising to promote the hospital's expanded services and its picturesque mountain environment (*243*).

Harts Health Clinic—CHCs have also used marketing to successfully improve community awareness and increase access to care. A center in the small remote town of Harts, West Virginia, successfully used feature articles and announcements in the local weekly newspaper, open houses, speaking engagements at area civic clubs, and colorful brochures and banners to communicate the presence of new providers, equipment, and services. Clinic service utilization noticeably increased, apparently countering earlier community concerns about the lack of personal physician care and the lack of available needed services in the area (*251*).

Rural CHCs can also benefit from strategic planning. The Public Health Service provided categorical grants to many rural centers in the mid-1980s to develop and implement plans to adapt to local changes and reduced Federal funding (*585*). No known evaluation of the success of these planning efforts has been performed to date.

Marketing and Public Relations

Many rural hospitals have traditionally encountered little competition by other facilities and providers. These hospitals now increasingly face declining inpatient demand, competition for patients from more aggressive rural and urban providers, and poor community perceptions of the extent and quality of their services (see ch. 5). The consequence is a renewed emphasis on marketing and public relations by many rural facilities (see box 6-B).

A 1987 study of 476 small or rural hospitals by the American Hospital Association (AHA) found that about 60 percent of the institutions were actively engaged in marketing, with a heavy reliance on image advertisements in newspapers (*244*). A related study in 1985 found that the rural hospital's administrator was most commonly charged with the marketing function, in contrast to urban hospitals where such responsibilities are typically handled by a marketing director. The study also found a lack of understanding of marketing, and its importance, by trustees and management (*166*).

Improved Leadership and Management

Rural hospitals often suffer from inexperienced administrators and high management turnover. According to one report, the administrator turnover rate reached 24 percent in 1986-87 among urban and rural hospitals combined. The hospitals with the highest turnover have generally been small, and they are more likely to have experienced higher costs and lower profits and admission rates than other hospitals (*607*). Yet experienced administrators may be unattracted to rural hospitals because of lower salaries, and thus many rural institutions may have to accept untested or mediocre administrators (*361*). CHCs can also suffer if their administrators are inexperienced; such administrators may lack the time or sophistication to prepare Federal grant applications and operations reports in a satisfactory manner, potentially jeopardizing receipt of funds and center solvency.

Rural managers with small operating budgets and limited specialty staff may need to acquire for themselves the skills needed for recruiting and trimming staff, writing service plans, creating advertising copy, and completing cost reports. It is possible that more extensive management training enhances the ability of administrators to carry out such diverse tasks. One survey found that 53 percent of rural hospital administrators with bachelor's degrees stated their hospitals were sound financially, compared with about 62 percent of those with master's degrees (*361*).[3]

Governing boards also play a critical part in hospital viability, a factor recognized in several communities. For example, with assistance from the WAMI Rural Hospital Project, several rural institutions in Washington have implemented plans for trustee education and development in order to increase the quality of leadership and teamwork (*45*).

In the early 1980s, the Association of Western Hospitals Educational and Research Foundation, with support from the Kellogg Foundation, created a 6-year program to improve management and leadership skills in rural hospitals (see app. E). Projects included a fellowship program to place recent graduates in health management into rural institutions, the use of retired healthcare executives as consultants, an educational and development program for trustees, and a program to help form alliances between rural hospitals and local businesses. Evaluation of the experimental program among participating rural hospitals found enthusiastic support (*188*).

An example of successful short-term management is shown in box 6-C.

Box 6-C—Example of Successful Short-Term Management

Trigg Memorial Hospital, a 30-bed facility in Tucumcari, New Mexico, was in critical financial condition in the mid-1980s. Demand for inpatient care had dropped 16 percent a year for the 4 previous years and the hospital had accumulated a $1 million debt. Staff morale was low and patient dissatisfaction was high as a result of some budget cuts; for example, the management had discontinued linen service, and patients began complaining of having to dry themselves with paper towels. A new administrator, hired in 1985, found ways to reduce expenses without sacrificing patient satisfaction, made other operational improvements, and increased collections. He invested considerable time in increasing community acceptance and support by attending civic club meetings, scheduling hospital open houses, and speaking on local radio talk shows. By 1987, the hospital was showing a small profit. Some major capital improvements, including replacing a boiler and water pipes, however, were still unrealized (*258*).

LONGER TERM APPROACHES

To maintain or improve their financial position, and to better serve their communities, rural health care facilities may take actions that involve some change in their mission or the extent of their autonomy. These actions fall into two general categories:

1. The reconfiguration of a facility's own services, through:
   - —hospital conversion to some form of nonacute care;
   - —hospital diversification into new products or services; and
   - —service expansion and practice enhancement by primary care centers.
2. The establishment of interinstitutional relations and partnerships through:
   - —formation of consortia and alliances, maintaining autonomy of the individual allied institutions; and
   - —affiliations with other facilities, or a system of facilities, that limit the control individual institutions have over their operations.

Limited specific information exists on these approaches, and what does exist is largely anecdotal. The following sections discuss some of the considerations and risks of each approach, and examples of how they have been applied.

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[3] The relationship between an administrator's additional training and hospital operating performance may also be due to other conditions—e.g., sound hospitals may be more able to offer salaries that attract administrators with higher degrees.

Hospital Conversion

Low occupancy and shrinking markets have caused many rural hospitals to consider converting all or part of their service capacity to something other than inpatient care. The additional threat of financial insolvency and closure may have forced many hospitals to consider conversion as a last resort. The final decision to convert, however, may often be difficult and very risky for rural hospitals. Conversion may be an appropriate option when:

- the hospital core business has declined, and additional markets cannot be found;
- certain resources (e.g., adequacy of the facility, ability to attract appropriate staff or physicians) are limited;
- reimbursement for existing services is inadequate, and reimbursement for new services through conversion appear to be more acceptable;
- the hospital is having trouble covering existing debts;
- the conversion is targeted to a specific market population; and
- the hospital has a contingency plan and avoids unnecessary risks (*373*).

Common types of hospital conversions are from acute-care inpatient to ambulatory care or long-term care facilities. For example, some rural hospitals have converted to comprehensive ambulatory care centers with capability to deliver some level of emergency care. Services might include primary care, emergency care, basic laboratory and radiology service, and outpatient surgery. Existing hospital beds might support surgical recovery, emergency waiting, or adult day care services. Other hospitals may convert more simply to nonsurgical, diagnostic, or urgent care outpatient centers. Conversion to some form of long-term care facility may be especially attractive to some rural hospitals with excess acute care capacity and large elderly service populations.

Some small rural hospitals have already in effect converted to short duration, medical observation facilities or infirmaries. In these facilities, patients typically are held 24 to 48 hours for stabilization and observation by a physician or nurse, and then either released to home or transferred to a hospital. However, current Federal and State regulations still usually require these facilities to be licensed as full-service acute-care hospitals and bear basic costs associated with this designation (*74*).

Conversion does not necessarily eliminate the problems faced by rural hospitals. State limits on the addition of certain services and beds may prevent conversion itself. For example, Minnesota has recently had a statewide nursing home bed moratorium (*391*).[4] Also, State facility licensure laws typically prevent the conversion of hospitals to "lower level" emergency treatment and stabilization facilities unprepared to abide by regular hospital licensure requirements.

Obtaining the capital to cover the planning and construction costs of converting an existing facility may be difficult and expensive. Legal fees, unemployment compensation to displaced staff, and the payment of existing debts and obligations typically must also be covered. The facility may need to recruit new staff or operational expertise (e.g., nurse aides for a long-term care unit who must undergo additional training and certification) (*187*).

There is no information on the number and scope of rural hospital conversions nationwide, but case examples describing some of the range of experiences are available (see box 6-D).

Hospital Diversification

Unlike conversion, in which part or all of a hospital actually changes its mission and service structure, diversification involves expanding into new services. Diversification is commonly intended to:

- increase the institution's revenue base,
- strengthen referral sources,
- enhance community image,
- develop more comprehensive services, and
- limit excess capacity.

Diversification, like conversion, carries many risks and requires careful research and planning to avoid overextending resources. Understanding the market demand for the proposed service, having a favorable reimbursement and regulatory environment, know-

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[4] Moratoria on nursing home services by States may, in addition to indicating that there is currently a sufficient supply of such services, reflect the fact that State Medicaid budgets (the major payer of nursing home care) are already severely constrained, and the States cannot afford further requests for nursing home care payments.

Box 6-D—Two Examples of Hospital Conversions

Warren General Hospital, a 37-bed public hospital in rural North Carolina plagued by debt, low occupancy rates, and an impoverished patient base, decided to close in 1985. The community feared that if services ceased they would lose their remaining physicians and their only local source of emergency care. In 1988, the community passed a bond referendum to raise the capital for the conversion of the hospital to a primary care center. They did so, however, at the expense of other vital community services, such as schools, that were also dependent on support from the county's eroding tax base.

With coordinated support from the State and Federal Governments, the community was able to recruit three new physicians. The clinic currently is delivering primary care under the joint direction of the county's health department and a federally supported community health center (*86,87*).

McGinnis Hospital, a 17-bed hospital in rural Pennsylvania, was struggling with declining inpatient utilization and ensuing operating losses in the early 1980s. The hospital was previously privately owned, but it had recently been purchased by a nearby hospital group, Westmoreland Health System. Because of the hospital's aging facility, eroding financial condition, and small size, Westmoreland management explored a number of facility conversion options, including ambulatory surgery, substance abuse, wellness services, hospice, and various types of long-term care. In 1984, Westmoreland decided to convert the hospital to an ambulatory care facility, specializing in same-day ophthalmologic and reconstructive surgery. The center now has a medical staff of 28 performing over 2,000 outpatient surgeries a year, drawing from a large geographic area, and it is realizing a profit from operations. However, Westmoreland has had to overcome some difficulties, including resistance to change by the facility board and community residents and lack of enthusiastic support from employees and medical staff. The center decided to retain its acute-care license in order to remain eligible for maximum reimbursement rates, but in order to comply with hospital licensure requirements it has had to maintain certain expensive facility and staffing standards. Proposed changes in Medicare reimbursement for outpatient surgery (see ch. 3) may limit the facility's profits (*374*).

ing the competition's capability as well one's own, and being willing to risk failure by providing nontraditional services are all critical elements of this process (*214*).

Diversification can take many forms, although in most cases hospitals probably diversify within the health care industry.[5] It is often a form of vertical integration, where the hospital expands its service base to encompass a more comprehensive level of care. Examples are hospital sponsorship of a primary care group practice or home health agency. This strategy has several advantages for the hospital, including:

- greater control over referrals;
- increased access to reimbursement at different levels of patient care;
- an attraction for consumers who would have a variety of their needs met at one location or by one system of care;
- the possible forestalling of competitive practices of physicians (e.g., housing certain diagnostic lab equipment in their own offices); and
- reduced need to transfer or refer patients to other health service providers (*109,387*).

Common candidates for diversification include:

- long-term care units (see ch. 5);
- psychiatric and substance abuse treatment;
- rehabilitation services;
- ambulatory care (e.g., outpatient surgery, diagnostic imaging, wellness and health promotion services);
- occupational medicine; and
- women's medicine and birthing services.

An example of how these services might be used is presented in box 6-E. The use of swing beds for long-term care and diversification into various ambulatory care services are particularly common for rural hospitals.

Use of Swing Beds

Swing beds are hospital beds that may be used to provide either acute or longer term care. The term

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[5] Some nonprofit hospitals may undergo corporate restructuring by creating parent holding companies and changing their tax status, making it possible to engage in non-health diversification (e.g., apartment leasing, credit collection services) with minimal adverse tax or regulatory consequences. Competition within these hospitals for limited resources, however, often may make the use of funds for unrelated activities less of a priority and thus unacceptable (*374*).

Box 6-E—Example of Hospital Diversification

Gritman Memorial Hospital, a 62-bed facility in Moscow, Idaho, has developed a number of diversified programs in the past few years. The hospital had previously experienced annual declines of 10 percent in utilization, "outmigration" of nearly 30 percent of its area residents, and a governing board and administration resistant to change. The board finally decided to appoint new members and hire a new management team for the first time in 25 years.

The new administrator developed a detailed diversification strategy with input from staff and community. Market research identified the demand for potential services and some of the reasons for the high rate of patient outmigration. Ultimately, the hospital decided to institute a comprehensive family birthing center, a diagnostic imaging center with computed tomography scanner and nuclear medicine, a mammography program, an outpatient physical therapy complex with rehabilitation and sports medicine, and an outreach laboratory. The hospital undertook most of these diversified programs without obtaining large amounts of capital or incurring substantial new debt. Since diversifying, Gritman has increased utilization by up to 12 percent annually, improved its operating margin threefold, and witnessed a 20 percent decline in patient outmigration (*374*).

"swing bed" is used because the hospital patient may "swing" between acute and skilled or intermediate care as needed, and still qualify for Medicare and Medicaid reimbursement (see ch. 3). Federal payment for swing beds is relatively recent; it was initiated after studies in the 1970s found that swing beds improved access to skilled nursing care for rural residents.

The growth of the swing bed program was slow at first, with only about 150 participating hospitals by 1984 (*553*). Recent growth has been rapid, however, perhaps in part as a result of the Medicare prospective payment system and its incentives for hospitals to discharge patients from acute care beds more rapidly. By July 1987, approximately 1,000 hospitals (about 47 percent of all eligible facilities) were participating (*552*).

Swing beds may be attractive or appropriate services for hospitals that:

- are in rural communities with an unmet need for institutional long-term care;
- have low acute-care occupancy and excess staff capacity; and
- have staff with satisfactory knowledge and training in long-term care (*554*).

Studies have found that the swing bed program both fills a gap in care for post-acute patients and provides small rural hospitals with a welcome source of revenue (*510,552,555,700*). A 1987 evaluation of the swing bed program concluded that three-fourths of all swing bed admissions in 1985 were from acute care beds; two-thirds of these were from the swing bed hospital's own acute-care unit. Medicare is the major payer, covering 49 percent of all swing bed days in 1985. Medicaid pays for about 8 percent of swing bed days (*555*).

The additional cost to hospitals of providing swing bed care is relatively small, since the beds already exist. Although swing bed care is not a major moneymaker, even low utilization levels can create net revenue for the hospital.[6] Nationally, swing bed revenue represents about 8 percent of total revenue in hospitals that have such beds (*510*). Also, having on staff specialized personnel (e.g., a social worker or physical therapist) for swing bed care may make it more feasible for a hospital to diversify into other services for the elderly.

Swing bed services generally provide short-term post-acute care rather than long-term care. The quality of care provided to the subacute, shorter stay patient appears to be satisfactory; however, care for patients needing more traditional, longer term nursing care may be better provided in area nursing homes (*700*). This finding is probably related to the type and level of staffing required. For example, the more intensive needs of swing bed patients may necessitate more regular attention from physicians. Also, hospital staff that serve acute and long-term care patients may lack the necessary expertise to provide different levels and quantities of care (e.g., coordinating social, recreational, and other therapeutic services not typically provided to short-stay patients) (*700*).

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[6] For most hospitals, swing bed revenues exceed swing bed costs at low volumes of swing bed care. However, at high swing bed volumes (about 2,000 patient days), one study found that costs began exceeding revenues (*541*).

Table 6-1—Community Hospitals With Medicare-Certified Swing Beds, 1987

Swing bed hospitals	
Total Medicare-certified swing bed hospitals[a]	983
Percent of hospitals in frontier areas that are Medicare-certified swing bed hospitals	60
Percent of sole community hospitals[b] that are Medicare-certified swing bed hospitals	38
Characteristics (per swing bed hospital)	
Mean number of acute care beds designated as swing beds	17.3
Mean percent of swings beds to total facility beds[c]	39.6
Mean swing bed admissions: number (percent) of total admissions	47 (6)
Mean swing bed inpatient days: number (percent) of total inpatient days	888 (13)

NOTE: Community hospitals are defined here as all non-Federal, short-stay, nonspecialty hospitals (see app. C).

[a] Number does not include 19 hospitals that had swing beds but were not Medicare-certified swing bed hospitals. Number includes only hospitals in nonmetro areas; Federal law defining geographical eligibility for Medicare swing bed certification uses the U.S. Bureau of the Census definition of a rural area.

[b] As defined for Medicare purposes.

[c] Total facility beds include all beds--hospital and long-term care beds.

SOURCE: Office of Technology Assessment, 1990. Data from American Hospital Association's 1987 Annual Survey of Hospitals.

Hospitals converting acute-care beds to swing beds may face problems such as:

- staff reluctance to accept new responsibilities;
- staff recruitment difficulties imposed by Medicare's conditions of participation that require the provision of certain services (e.g., recreational therapy);
- unfamiliarity with regulations that were designed for skilled nursing facilities; and
- inadequate third-party reimbursement.

Most of these problems diminish with hospital experience as a swing bed provider (*700*).

Recent legislative changes (Public Law 100-203) enable all rural hospitals with under 100 beds to participate in the Medicare swing bed program[7], thus expanding the pool of eligible hospitals to about 2,800 (*555*). Hospitals with more than 49 beds must meet conditions intended to minimize competition with nursing homes. These conditions include transferring extended-care patients within 5 days to a skilled nursing bed in the hospital's region unless the transfer is not deemed medically appropriate by a physician or there is no such bed available.

In 1987, 983 hospitals were reported to be certified by Medicare as swing bed providers (table 6-1). In these hospitals, swing beds accounted for nearly 40 percent of total beds and 13 percent of total inpatient days. Hospitals located in frontier areas find swing beds especially attractive. Swing bed hospitals are most prevalent in the central and western parts of the United States; the West North Central region contains 42 percent of all swing bed facilities (figure 6-1).

The growth of swing bed use in some States may be hampered by certain Federal and State regulations (see ch. 7); however, some States have eased restrictions on swing bed development. North Carolina now exempts swing beds from certificate-of-need review unless expenditures related to swing beds are $2 million or more, which is unlikely given the small capital costs required for such diversification (*474*). Montana, which previously had allowed Medicaid payment for swing beds only when there was no available nursing home bed within a 100-mile radius of the swing bed hospital, reduced its limit in 1989 to a 25-mile radius (*452*). Also, several States recently have passed laws authorizing Medicaid to pay for swing bed services. A 1989 survey found that 31 States were presently providing Medicaid coverage of swing bed care (*474*).

Ambulatory Care

Although nearly all rural hospitals provide some outpatient services (see ch. 5), ambulatory care continues to be an attractive area of hospital diversification. In 1987, about 80 percent of all hospitals (both rural and urban) surveyed by the

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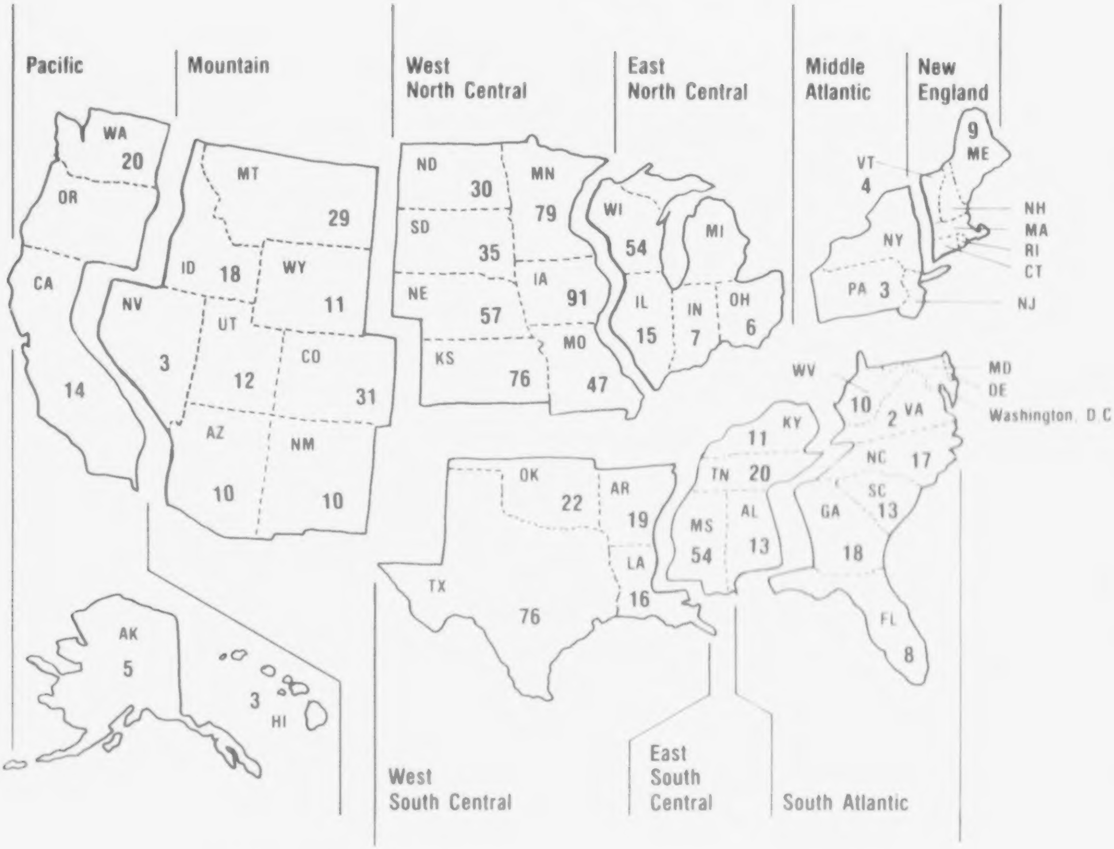
[7] States also may extend Medicaid coverage to all rural hospitals under 100 beds.

Figure 6-1—Number of Medicare-Certified Swing Bed Hospitals, by Census Region and State, 1987


Pacific
Mountain
West North Central
East North Central
Middle Atlantic
New England
WA 20
OR
CA 14
NV 3
ID 18
MT 29
WY 11
UT 12
CO 31
AZ 10
NM 10
ND 30
SD 35
NE 57
KS 76
MN 79
IA 91
MO 47
WI 54
IL 15
IN 7
MI
OH 6
NY
PA 3
VT 4
ME 9
NH
MA
RI
CT
NJ
MD
DE
Washington, D.C.
WV 10
VA 2
NC 17
SC 13
GA 18
FL 8
KY 11
TN 20
AL 13
MS 54
OK 22
AR 19
LA 16
TX 76
AK 5
HI 3
West South Central
East South Central
South Atlantic

Regional totals:

▪ West North Central	415	▪ South Atlantic	68
▪ West South Central	133	▪ Pacific	42
▪ Mountain	124	▪ New England	13
▪ East South Central	98	▪ Mid-Atlantic	3
▪ East North Central	87		

SOURCE: Office of Technology Assessment, 1990. Data from American Hospital Association's 1987 Annual Survey of Hospitals.

AHA said they planned to diversify further into ambulatory care. They perceived the advantages to be increased revenues, larger market share, greater inpatient occupancy, and the improved ability to compete with area providers (*275*).

Hospital-based ambulatory surgery facilities can be particularly attractive in rural areas. They require limited capital, are convenient for physicians, and are a major source of surgical emergency care for the community. However, many hospitals are concerned about their profitability because of low patient volumes and changes in reimbursement (see ch. 5).

Another ambulatory care option for rural hospitals is the sponsorship of primary or urgent care clinics and group practice centers. Physicians may sometimes find these arrangements attractive because they ensure back-up assistance and remove many administrative responsibilities from the physician.

For hospitals, the benefits include working more closely with physicians to capture and retain patients, stabilizing the physician practice, and improving the delivery of primary care services. However, obstacles to rural hospital diversification into primary care may include:

- difficulty recruiting and retaining physicians;
- hospitals' lack of knowledge and experience in primary care delivery;
- opposition by the local medical community;
- competition from primary care physicians and hospital emergency rooms;
- unstable financial condition of the hospital or primary care practice; and
- lack of patient awareness or acceptance due to poor marketing and quality assurance.

Nationwide, the number of hospital-operated freestanding centers providing primary or urgent care services had risen to 1,003 in 1988 (*362*). No data specifically exist for rural hospitals.

Hospital-affiliated primary care in rural areas takes various forms, including:

1. *Hospital-based and sponsored primary care clinics*—In this model (used by many Indian Health Service hospitals), the hospital delivers the primary care. In one example, an 80-bed rural hospital in North Carolina provided an onsite facility and operating subsidies to attract a primary care group practice to the hospital campus (*485*).
2. *Hospital-based certified rural health clinics* (RHCs)—Becoming a Medicare-certified RHC may help a rural hospital's ambulatory care diversification efforts. As noted in chapter 3, hospital-based primary care clinics under this program are paid a rate covering all reasonable costs for serving Medicare and Medicaid patients if they offer the use of midlevel practitioners at least 50 percent of the time. However, many rural hospitals remain unaware of this opportunity, find midlevel practitioners unavailable, are in States that limit Medicaid reimbursement for their services, or face other discouraging factors (see ch. 7). As of 1989, no more than 25 hospitals had been certified as RHCs (see ch. 5).
3. *Hospital-sponsored, satellite primary care centers*—Satellite clinics extend the hospital's referral base and provide primary care to a geographically broad service area. Satellite clinics may provide community education, screening services, other primary care services, and diagnosis and treatment for essential emergency care. They can also provide a more accessible and less costly source of primary care for poor patients who previously may have used the hospital's emergency room (see box 6-F) (*190*).

Box 6-F—Example of Hospital Diversification Into Primary Care

In the mid-1970s, *Roanoke-Chowan Hospital* in Hertford County, North Carolina, opened a primary care center in Gatesville (25 miles away in Gates County) to make health care there more accessible and comprehensive. (Gates County is predominantly poor and has one of the highest infant mortality rates in the State.) The hospital's outreach effort was unusual in that it was believed to be the first case of a North Carolina public hospital providing such services beyond its county borders. Development of the satellite program involved initial foundation support and the cooperation and assistance of the Gates County commissioners and a nearby State-supported rural health clinic. The center was to be staffed full-time by a family nurse practitioner with onsite supervision from a hospital emergency room physician 20 hours a week. Center services were to include a pharmacy, diagnostic care, and transportation services for patients to and from the hospital and area specialists (*485*).

Corporate Restructuring

Hospitals may restructure their corporate or organizational identity in order to diversify. For example, they may transfer certain hospital assets or functions to a separate corporation, such as a parent holding company of which the hospital becomes a subsidiary. This arrangement may be attractive to private, nonprofit hospitals wishing to protect their tax-exempt status while diversifying into unrelated and often for-profit businesses (*31*).

Hospital restructuring through the formation of parent holding companies and subsidiaries has not become common. A 1987 national survey of hospitals interested in diversification found that only one-fourth had created a subsidiary to operate diversification activities (*275*). Corporate restructuring is particularly uncommon in rural hospitals. About 11 percent of rural community hospitals were

Box 6-G—Four Examples of Rural Primary Care Networks

Marshfield Clinic, located in Marshfield, Wisconsin, is a large private, multispecialty group practice that offers a variety of outreach programs to a large rural region of the State. Created by 6 physicians in 1916, it now has over 250 physicians representing some 60 medical specialties. Since 1976, Marshfield has established 17 regional clinics, most located in small towns 10 to 100 miles from the main clinic. A regional services program provides advanced diagnostic testing and medical education and consultation services to over 370 hospitals and health care facilities serving a population of 3.5 million. The program provides various mobile diagnostic services (e.g., echocardiology), and a regional reference laboratory performs about 250,000 tests annually. The Clinic has also formed the Marshfield Medical Research Foundation to provide support in such areas as physician recruitment, clinical research, and administration of a federally funded clinic serving low-income patients (*449*).

The Southern Ohio Health Services Network, a private, nonprofit system of primary care centers, was originally created to attract physicians to a poor and medically underserved Appalachian region. The number of primary care centers operated by the network has grown from 1 in 1976 to 12 in 1988, covering 4 counties and serving 30,000 patients. In addition, the network manages a center that provides State-supported comprehensive prenatal care and supplemental nutrition services. Federal funds now provide 32 percent of the network's budget, compared with 52 percent when the network began operations. The centers share the services of some specialty physicians. They also share central office financial and personnel management and centrally organized staff education (*724*).

West Alabama Health Services (WAHS), opened in 1973, operates 5 primary care clinics, a 20-bed hospital, and a 52-bed nursing home and serves 8 counties in rural Alabama. Greene County, site of the central office and main medical center, is one of the five poorest counties in the Nation. In response to a high incidence of infant mortality and teen pregnancy in the area, WAHS began the Rural Alabama Pregnancy and Infant Health Project, providing preventive care with the support of a private foundation and participation by the district health department, an urban community health center, and university medical center. WAHS also employs dentists and specialists in mental health, nutrition, hypertension, and preventive health, and it has linkages with area Head Start and elderly meal programs. WAHS now provides more than 100,000 patient visits a year; nearly one-fifth of its patients rely on transportation services provided by WAHS. The central office handles all purchasing, billing and other administrative support requirements for the centers (*135*).

United Clinics—Some rural private practices have also used satellite clinics to expand services. In 1965, two private physicians (a family practice physician and a radiologist) formed United Clinics, a private multispecialty group practice in rural North Dakota. The group expanded into internal medicine, obstetrics, pediatrics, and general surgery, and now has 17 physicians. Over a period of 20 years, United Clinics established six satellite clinics serving nine counties in North and South Dakota. Each clinic maintains x-ray, laboratory, and minor surgery capability to support the delivery of basic primary care and some specialty services (*536*).

part of a holding company in 1987, and just 6 percent operated a subsidiary (*625*).[8] For publicly owned hospitals, there are several legal restraints to corporate restructuring (see ch. 7).

Primary Care Facility Diversification

Like hospitals, some primary care centers have sought to diversify their services in order to provide a fuller array of health care while maintaining or improving their financial standing. These centers may depend on government funding (e.g., as community health centers (CHCs)) or operate as private practices. One emerging "diversification" strategy is the development of satellite clinics or multicenter networks that permit both operational efficiencies and service expansion (see box 6-G).

Satellite clinics staffed by midlevel practitioners can be used to expand primary care services, particularly in sparsely populated areas where there may be no local physician. Such midlevel practitioners can operate with considerable autonomy, receiving routine clinical supervision and support from physicians in other communities. In one clinic in a small isolated South Dakota community, for example, a physician assistant (PA) is the sole provider of care. The clinic is located between two Indian reservations and serves three of the area's poorest counties. The PA can call in prescriptions to the nearest pharmacy 55 miles away, and orders usually arrive in the community within a day. The PA is also allowed to have predispensed starter doses of drugs on site for common needs (*354*).

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[8] Includes only rural hospitals with fewer than 300 beds.

Some communities have resorted to unusual arrangements to obtain urgent primary care. A small rural community near the Colorado/Kansas border lost all essential primary care services in late 1985 when its small hospital closed and was converted to a nursing home, and the local physicians closed their practices and moved away. In 1986, investors from the community agreed to become partners with a private urgent care medical group in Denver, in order for the group to reopen the community clinic next to the nursing home as an urgent care center. Three physicians from the medical group were flown in to staff the clinic. None of the physicians lived in the community on a regular basis and none offered extended hours, but they were on call for emergencies around the clock. To ensure some continuity of care, the group also planned to negotiate contracts with regional hospitals to arrange secondary and tertiary care for patients seen at the clinic. Community support in the early stages of the venture was reported to be excellent (*723*).

Where no traditional primary care providers are available, some local health departments have begun providing primary care, often to poor patients or residents of sparsely populated areas. For example, the health department in Price, Utah contracts with a physician to deliver primary care and case management services to Medicaid recipients and those without insurance in a four-county frontier area. The health department also has become a Medicare-certified home health agency (*622*).

In 1986, rural Marion County, Florida opened a primary care center, funded through the county health department, in order to reduce inappropriate use of the county hospital's emergency room facilities by indigent patients. The primary care clinic furnished nearly 3,700 patient visits in its first 5 months of operation (*222*).

Local health departments sometimes target a very specific service and population. With private foundation and State support, the district health department in Elizabeth City, North Carolina began in the mid-1970s providing mobile dental clinic services to needy children living in a four-county region. Services include screening, education, treatment, and referral. The mobile unit serves children onsite at area public schools; eligibility for services is tied to eligibility for the free school lunch program. About half of the children examined in the first year of the project were found to need immediate dental treatment (*485*).

Hospital Cooperatives

Financial problems and increased competition for shrinking resources (e.g., capital financing) have compelled many rural hospitals to seek assistance from or cooperation with other providers. Such alliances may be sought in order to increase operational efficiencies, obtain management expertise, and enhance access to other resources.

Cooperative efforts have a solid history in the delivery of essential rural services (e.g., electricity, credit unions). Cooperative ventures to attract and provide health services bloomed in the 1940s, only to fade within a decade as community and government support declined (*306*). The cooperative concept appears to have experienced a resurgence in recent years, due to its promise of enhancing resources while preserving the independence of individual providers. The nature of the relationship among cooperating facilities may vary considerably (see box 6-H for examples).

Some of the potential benefits of cooperative relationships are:

- *more efficient operations* from reducing duplication and sharing equipment, facilities, staff and benefit plans, administrative services, marketing and management talent, and other resources;
- *improvement of market strength* through cost savings (e.g., from volume purchase discounts), increased productivity, and improved access to capital financing; establishment of beneficial patient referral arrangements; and participation in ventures such as preferred provider organizations and regional reference laboratories;
- *providing a forum* for information sharing and political advocacy of common causes; and
- *strengthening quality of care measures*.

There are obstacles to these potentially advantageous relationships. First, a lack of trust among competitors may be hard to overcome. Second, the rigidity of some alliances may not suit some members' needs. The alliances may limit the choice of shared services, or they may not be flexible enough to adapt to changes in the market for

Box 6-H—Three Examples of Hospital Cooperatives

The Rural Wisconsin Hospital Cooperative (RWHC) is a network incorporated in 1979 that now includes 18 small hospitals (average 50 beds) located in southern Wisconsin, and an urban university hospital. The purpose of RWHC is to provide a base of support and a catalyst for the development of joint ventures. Modeled after the traditional (and familiar) dairy cooperative, member participation in particular shared services is voluntary and is contracted on a fee-for-service basis. RWHC's projects include:

- sharing such diverse services as rehabilitation therapy and physician coverage of emergency rooms;
- development and early administration of the Health Maintenance Organization (HMO) of Wisconsin, one of the first rural-based HMOs in the country;
- development and administration of the RWHC Trust, providing health and dental insurance for staff of member hospitals; and
- a mobile computed tomography scanner and nuclear medicine services program for RWHC members and other area hospitals.

In 1988, with support from the Robert Wood Johnson Foundation, RWHC implemented a regional approach to improve hospital quality assurance programs and physician credentialing, enhance hospital financial management capabilities, and improve hospital trustee governance (*621*).

Northern Lakes Health Care Consortium (NLHCC), founded in 1985, is a nonprofit cooperative network of 21 hospitals, 50 medical clinics, and 2 medical schools located in northern Minnesota. The consortium, which grew out of a series of workshops and studies in 1984, quickly became an arena for area rural hospitals and physicians to explore solutions to common problems. NLHCC roles include legislative advocacy, technical assistance, shared services (e.g., discounted joint purchasing), ongoing educational sessions to the community and consortium, and multifaceted research on issues such as health promotion and disease prevention.

With private foundation support[1], NLHCC has also instituted several demonstration projects aimed at assisting member hospitals adapt to change:

- *The Rural Health Transition Project*, under which NLHCC provides matching grants and technical assistance to consortium hospitals to assess their internal operation and service area needs, and to plan any necessary restructuring.
- *A quality assurance network*, to develop comprehensive quality standards and help hospitals implement quality assurance programs.
- *A physician recruitment program*, to match medical students graduating from the University of Minnesota with NLHCC's member hospitals.
- *A regional long-term care network*, which helps long-term care providers integrate existing services, assess local long-term care needs, and establish new services. The network provides shared technical services such as physical therapy; inservice education; community-based outreach services for the elderly (e.g., home health care, case management, transportation services); marketing support; personnel recruitment; and quality assurance (*261,391*).

The CARES Project (Coordinated Ambulatory Rehabilitation Evaluation Services) was created in 1979 by the Medical Center Rehabilitation Hospital at the University of North Dakota in cooperation with two rural community hospitals. The U.S. Public Health Service provided initial funding. The goal was to provide coordinated, multidisciplinary services for rural children with multiple disabilities. CARES serves children in 10 sparsely populated counties covering nearly one-fifth of the State.

In the first phase of the project, a core team of visiting specialists from the rehabilitation hospital traveled bimonthly over 300 miles to each rural hospital to provide treatment and consultation to patients referred by area physicians. These physicians received written reports and continued to be responsible for overall patient care management. In the second phase, local providers (e.g., physical therapists) were trained by rehabilitation hospital staff to act as part of the core staff at the clinics. Specialty rehabilitation teams now are comprised primarily of local hospital personnel, with ownership and program responsibility shifting to the rural hospital and a few local physicians that have received special training. Because of the project, disabled children are now more likely to receive rapid evaluation and comprehensive care (*459*).

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[1] Sources of support include the Blandin Foundation and the Retirement Research Foundation (in association with the University of North Dakota).

services. Third, alliances can be time-consuming to develop and maintain because of the loosely coupled nature of the cooperative relationship and the distances between participating institutions. Other obstacles may be legal or regulatory in nature (see ch. 7).

Table 6-2 describes characteristics of 120 rural hospital consortia or alliances existing in 1989.[9] The average rural consortium had about 15 members. One-half of the alliances included at least 1 rural hospital with 100 or more beds, and over one-half had at least 1 urban hospital. The most common consortia activities were physician or staff education programs and shared services (*403*).

Rural hospitals are less likely than urban ones to belong to an alliance. In 1987, of community hospitals with fewer than 300 beds, 19 percent of urban and 12 percent of rural hospitals belonged to alliances (*625*). One-half of the rural members had fewer than 100 beds, and nearly two-thirds had nonprofit owners (table 6-3). Rural hospitals in alliances had slightly higher expenses than did all rural hospitals (table 6-4).

Cooperative Opportunities With Urban Referral Centers

Some rural hospitals formalize their patient referral relationships with urban tertiary centers and specialists (see box 6-I). Cooperative referral networks with urban providers may help rural hospitals and physicians stem the outward flow of patients and revenues to urban facilities. Conversely, referrals of complex cases from rural providers can bring substantial revenue to urban tertiary hospitals and specialists.

One report found that referrals from rural areas in Utah account for 5 percent of an urban tertiary center's patient days but up to 20 percent of its revenues (*76*). A study of referrals from rural family practice physicians to university-based physicians in mid-Missouri from 1982-85 found that the average referral generated nearly $3,000 in hospital and professional revenues within 6 months. Nearly one-half of the referrals (110 of 225) resulted in admissions to the university teaching hospital, representing 72 percent of all referral revenue for the hospital (*213*).

Table 6-2—Descriptive Characteristics of Rural Hospital Consortia[a]

Characteristics	Mean
Age (years)	6
Total number of members	15
Percentage with rural hospital having 100 or more beds	51
Percentage with urban hospital	55
Percentage with nonhospital member	30
Number of meetings past year	9
Percentage with board of directors	60
Size of board of directors	10
Percentage with paid director	44
Percentage with budget	63
Size of budget	$231,693
Sources of funding:	
Percentage with member dues	33
Percentage with grants	26
Percentage with revenues from activities	26
Percentage with other sources of revenues	23
Number of activities/programs offered by consortia	6
Types of activities (% consortia offering activity)	
Physician or staff education programs	81
Shared services	80
Legislative liaison	70
Marketing or community relations	62
Regional planning	58
Physician or staff recruitment	55
Shared staff	47
Management or financial services	47
Primary or specialty clinics	43
Quality assurance	42
Acute-care bed conversions	22

[a] Based on the American Hospital Association definition, 120 rural hospital consortia were identified (see text). Not included are rural hospitals working only with nonhospital organizations, meeting only for discussion purposes or to pursue a single activity pertaining to policy or planning issues, and those working together mainly because of multihospital system ownership or management arrangements (403).

SOURCE: I. Moscovice et al., "The Development and Characteristics of Rural Hospital Consortia," contract paper prepared for the Robert Wood Johnson Foundation Hospital-based Rural Health Care Program, New York, NY, 1989.

Rural hospitals and physicians benefit from such referral arrangements by:

- developing close relationships between referring and referral center physicians that lead to side benefits (e.g., occasional practice coverage for referring physicians);

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[9] A hospital alliance in this table is defined by AHA as a formally organized group of hospitals or hospital systems that have come together for specific purposes and have specific membership criteria.

Table 6-3—Nonmetropolitan Hospitals[a] Under 300 Beds in Alliances[a] by Bed Size and Ownership, 1987

Bed size	Ownership		
	Government	Nonprofit	Total
6-24.........	5	7	12
25-49........	27	28	55
50-99........	29	50	79
100-199......	27	66	93
200-299......	10	39	49
Total......	98	190	288[c]

[a] Community hospitals defined here as all non-Federal, short-stay, nonspecialty hospitals (see app. C).

[b] Alliances are defined by the American Hospital Association as a formally organized group of hospitals or hospital systems that come together for specific purposes and have specific membership criteria.

[c] For-profit hospitals in alliances numbered 3 (1 percent of total).

SOURCE: Office of Technology Assessment, 1990. Data from American Hospital Association's 1987 Annual Survey of Hospitals.

Table 6-4—Total Expenses per Hospital for Nonmetropolitan Hospitals[a] in Multihospital Systems and Alliances, 1987

Bed size	Total rural	In multihospital systems	In alliances
6-24...........	$1,357	$1,661	$1,454
25-49..........	2,747	2,987	3,039
50-99..........	5,907	6,352	7,628
100-199........	12,820	13,710	15,386
200-299........	25,526	24,395	27,934
300-399........	44,681	49,683	45,000
400-499........	48,264	27,059	42,625
500 or more....	85,712	96,129	77,908
Total........	$7,639	$7,830	$7,842

[a] Community hospitals defined here as all non-Federal, short-stay, nonspecialty hospitals (see app. C).

SOURCE: Office of Technology Assessment, 1990. Data from American Hospital Association's 1987 Annual Survey of Hospitals.

- providing local followup care for patients treated at urban facilities;
- receiving periodic support of urban specialists to perform certain procedures (e.g., uncomplicated surgeries), to gain access to sophisticated technologies, and to offer clinical training and expertise; and
- enhancing the overall image of the local hospital.

However, efforts to formalize referral relationships (e.g., via contracts) may encounter drawbacks. These may include legal problems associated with self-interest in making referrals (see ch. 7) and limits on the use of alternative referral options.

Alliances Between Primary Care Providers

Some rural primary care providers have also developed cooperative arrangements. The Federal Government has recently encouraged CHCs to establish cooperative relationships with each other and with other health and social agencies.[10] Cooperative activities have included recruiting physicians, establishing computerized information networks, channeling low income patients to prepaid services, providing sources for continuing education, and sharing staff, equipment, and other resources (*585*). Some CHCs have linked management services to improve activities such as grantsmanship, board training and development, and provider recruitment. Box 6-J gives some examples of primary care alliances that have apparently been successful.

CHC alliances with area agencies on aging (AAAs) are a specific response to a need for greater linkage between health care and other services for the elderly. AAAs were created to provide a comprehensive and coordinated set of services for the elderly (e.g., home-delivered meals, information and referral, transportation) (Public Law 93-29). Rural AAAs appear to have smaller budgets and more limited ranges of services than do their urban counterparts (*287*).

In 1987, the U.S. Public Health Service and Administration on Aging undertook a joint initiative to increase cooperation between CHCs and AAAs. Cooperation may, for example, involve the use of AAA senior centers as satellite clinics for CHCs, and the provision of dental services to the elderly by CHCs. CHCs can provide many of the basic health, nutrition, and preventive care services that AAAs may be unable to offer (box 6-J) (*460*).

The mandates of both CHCs and local health departments (LHDs) to provide basic health services to the poor and disadvantaged may lead to duplication of services. With the recent involvement of many LHDs in primary care, CHCs and LHDs in

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[10] The Public Health Service provided special funds to about 120 CHCs between 1984 and 1986 to support consortia activities, hoping to demonstrate their effectiveness and encourage their development elsewhere without further funds. A formal evaluation of these efforts is planned for 1990 (*585*).

Box 6-I—An Example of a Rural-Urban Hospital Alliance

Mercy Hospital Medical Center, a nonprofit 535-bed tertiary care facility in Des Moines, Iowa, has established a cooperative network linking Mercy and 38 rural hospitals within a 100-mile radius. The network attempts to improve and expand services of participating rural hospitals and increase patient referrals to Mercy from rural physicians. Witnessing greater competition among Des Moines hospitals, Mercy in 1985 surveyed area rural hospital needs and subsequently organized a network of outpatient specialty clinics. By 1989, physicians from 20 specialties were providing over 80 clinics in 28 rural hospitals. Urban consulting specialists are now encouraged to use local hospital resources (e.g., laboratory and x-ray facilities) that generate added revenue for the rural hospital. To assist the specialists and keep local physicians familiar with new medical technology, Mercy also provides certain clinical technology services and equipment (e.g., computerized EKG machine) at minimal cost to the local facility.

The Mercy Hospital Network has formal affiliation agreements with 11 rural hospitals, 7 of which have requested Mercy for an administrator. To maintain the local hospital's autonomy, the administrator is accountable to that hospital's board of directors. All rural hospital affiliates may obtain low-cost management and clinical consultation services, staff education programs, and assistance in recruiting physicians and allied health professionals. Network hospitals without formal affiliations may purchase similar services at somewhat higher prices (*81*).

rural areas may find it advantageous to share services and resources (box 6-J).

Multihospital Systems

A multihospital system (MHS) is broadly defined by the American Hospital Association as two or more hospitals that are owned, leased, sponsored, or contract-managed by a central organization (*107*). MHSs may be either nonprofit or investor-owned. Nonprofit systems are tax-exempt organizations, usually regional in scope. Investor-owned systems are for-profit, shareholder-based institutions usually controlled by a central management.

Affiliation with an MHS requires yielding some or all of a hospital's autonomy. A hospital will probably be unable to reverse its lease or sale to the MHS. Contract management by an MHS is also relatively irreversible. It appears to have improved the management of many hospitals (*315*), but it may be perceived by some hospitals as a means by an MHS to eventually gain more control.

Many of the conditions that lead hospitals to diversify or participate in cooperatives also apply to joining MHSs. In addition, hospitals may turn to MHSs because of immediate financial crises. Specific factors might include:

- physical plant deficiencies that the hospital does not have the capital to remedy;
- the perceived opportunity for the hospital to improve access to capital and specialized management expertise through an MHS; and
- pressure from local community leaders who are anxious to stabilize the hospital's operating environment (*282*).

For the MHS, advantages of recruiting rural hospitals may include eliminating competition, enabling more control over regional markets to gain patient share and profits, and improving the delivery and access of certain health services. Box 6-K provides two examples of MHSs.

Rural participation in MHSs has waxed and waned. From 1950 to 1983, the number of small rural hospitals (with fewer than 100 beds) that joined systems increased from 32 to 490 facilities. Most hospitals in MHSs (46 percent) were under contract management (*345*). By 1985, more than one-third of rural community hospitals were in MHSs (*31*). By 1987, however, the number of rural community hospitals in multihospital systems appears to have declined to about 25 percent of rural community hospitals with fewer than 300 beds (table 6-5).

The recent decline in MHS participation by rural hospitals is probably indicative of their fears that:

- their autonomy and flexibility will be diminished;
- MHS management will neglect local interests and needs (e.g., staff will be replaced with corporate-designated personnel); and
- local revenue may be lost from the community (*345*).

On their part, many MHSs are reportedly finding rural hospitals to be less attractive as investments.

Box 6-J—Seven Examples of Primary Care Alliances

Eastern Shore Rural Health Systems, a network of three Virginia CHCs, needed additional physician services in the mid-1980s but could not justify the use of a full-time provider. With Federal support, the network negotiated with Delmarva Ministries, a regional migrant service program that needed a physician during the migrant worker season. The subsequent agreement to jointly recruit and share another physician also allowed the joint purchase of a new van needed to serve people with inadequate transportation (*585*).

Aroostoock County Action Program, a consortium of five CHCs in northern Maine, was formed to improve access to obstetrical services for women in a 900-square-mile area. Consortium plans included recruiting and sharing a physician to provide obstetric care, and later expanding obstetrical services to include a multidisciplinary team of professionals (e.g., nutritionist, outreach worker) to be shared through cooperative agreements with area agencies. These efforts would coincide with the consortium's development of a perinatal care plan for the area, linking needy and high-risk patients to a comprehensive array of services (*585*).

Three small CHCs in frontier Utah agreed in 1988 to establish an informal consortium. Major distances from other health care resources limited their ability to obtain regular coverage for their solo-practice physician assistants (no physicians were on site). Early efforts by the CHCs to develop a consortium have centered on applying for a foundation grant to support a preventive care program for the elderly at each of the centers, and jointly recruiting and sharing the costs and services of an additional midlevel provider (*600*).

Valley Health Systems, a group of southern West Virginia CHCs, affiliated in the late 1970s to share administrative and clinical services. Initially under a contract with a separate management group, the centers received support for grant writing, daily operations management, board training, provider recruitment, and other needs. In recent years, with encouragement from the Federal Government, the management group has assumed greater control over the centers to further consolidate grant activity and center operations (*551*).

The Alliance for Seniors is a cooperative effort begun in 1982 between area rural CHCs and the Egyptian Area Agency on Aging serving elderly persons in a 13-county area in southern Illinois. The alliance was in response to an Illinois requirement for a statewide case management system to serve as "gatekeepers" for elderly persons needing long-term care. Activities include:

- hiring a nursing home ombudsman,
- undertaking a 3-year elderly abuse prevention demonstration project,
- placing nurse educators in senior centers and encouraging local health departments to become involved in providing health promotion to seniors, and
- training homemakers and chore workers in oral screening and dental care, and purchasing equipment enabling area dentists to serve the homebound (*287*).

Wayne Health Service, a CHC in West Virginia lacking its own radiology equipment, had many patients in 1981 with no regular transportation but who often needed x-ray services. The only commonly available x-ray unit was about 40 minutes away, and the county health department's unit nearby was used infrequently. The CHC initiated an agreement with the health department to lease use of its x-ray unit at no charge, stipulating the CHC would cover all related operating costs. The CHC hired a part-time technician, set up a regular schedule for testing nonemergent referrals, arranged for an area radiologist to read films, and promoted the new service (*251*).

The Shenandoah Community Health Center in western Virginia, which serves a large migrant farmworker population at certain times of the year, relies on the local health department to contact migrants who have been exposed to infectious diseases. The CHC and health department jointly increase staffing and followup care during the harvest season to minimize delay in tracking exposed individuals. To address demand for more extensive laboratory tests, the health department is also helping train CHC staff to perform some of the laboratory work (*501*).

Some MHSs have divested themselves of rural hospitals. In 1985, for example, Republic Health Corp. sold five of its rural hospitals, while American Healthcare Management Inc., planned to sell five of its eight remaining rural hospitals that same year (559). Other MHS operating rural hospitals have suffered financial harm. Basic American Medical, which once managed 20 rural hospitals, was in 1988 operating only 3 rural hospitals that it had been unable to sell (*360*). Westworld Community Healthcare, which operated 40 rural hospitals at its peak in 1986, declared bankruptcy in 1987 while running 14 hospitals and reportedly incurring a $135 million debt (*709*).

Box 6-K—Two Examples of Multihospital Systems

Memorial Hospital and Home, a 29-bed hospital and 102-bed nursing home in rural Minnesota, in 1984 was suffering from declining utilization, staff turmoil, a negative community image, and a $250,000 operating deficit. In 1985, Memorial's board of directors signed a 2-year agreement with Saint Luke's Hospitals-MeritCare, a large tertiary hospital located 70 miles west in Fargo, North Dakota, to contract-manage Memorial.

Neither hospital had previous experience with such an arrangement. The contract required Saint Luke's to hire an administrator and in the first year develop new operating procedures, strategic plans, and marketing programs; conduct board training; evaluate and revise administrative and nursing policies (e.g., a new wage system); and review quality assurance activities. By the second year, new purchasing and computer services contracts were established, and outside specialists from Saint Luke's were brought in as needed to run clinics and provide staff education.

By 1986, the hospital showed a profit of $97,000. In 1987, remaining problems included a lingering low patient census, some negative community feelings, and the return of unexpected operational losses; however, most board members agreed to a new contract for an additional 19 months, allowing Memorial to participate in a joint purchasing agreement with Saint Luke's and Voluntary Hospitals of America (*246*).

Intermountain Health Care, Inc. , a nonprofit MHS, was founded in 1975 in Salt Lake City, Utah to assume ownership of 15 hospitals in the region divested by the Mormon church. IHC now manages, leases, or owns 23 community hospitals (14 of which are rural) in 3 States. It also operates 4 freestanding ambulatory surgical centers and 25 rural primary care clinics that serve as outreach facilities to the rural hospitals. Services provided to its member facilities include:

- a cardiac emergency care network linking rural hospitals and physicians with area tertiary care centers;
- access to high-risk perinatal care, lithotripsy, and central lab services;
- crosstraining and continuing education to retain nurses;
- sharing of medical directors between some hospitals, helping smaller facilities with credentialing and quality assurance activities; and
- group purchasing for supplies, data processing services, insurance, and employee health benefits.

Intermountain has recently faced excess capacity and increasing losses in its rural hospitals, forcing it to consider liquidating hospitals or converting them to other use (*115*).

Overall, the effectiveness of MHSs in helping rural hospitals to survive is uncertain. A national study of MHSs from 1984 to 1987 found little difference in the profitability and scope of services between autonomous rural hospitals and those in MHSs. However, rural hospitals in MHSs had lower costs per admission, were twice as likely to enter into economic joint ventures with physicians, and provided less uncompensated care than did independent rural hospitals. Among rural hospitals in MHSs, nonprofit systems offered a greater number of out-of-hospital services, engaged in more economic joint venture and managed care activity, and had less uncompensated care and lower costs per admission than investor-owned systems, but they were less profitable and had higher room charges (*418*). An earlier study found similar results; there were few differences in performance between hospitals owned by or leased to MHSs and MHS-managed or independent hospitals. Owned or leased hospitals were more likely to be accredited by the Joint Commission on Accreditation of Healthcare Organizations, and they had a higher average expense per patient day, but they did not provide more services (*88*). Neither study examined whether rural hospitals in MHSs had improved access to capital—the most commonly perceived advantage of MHS participation.

Local Hospital Mergers and Agreements

Where a community has two or more hospitals providing duplicative services and suffering excess capacity, consolidation of these services may be a successful strategy (see box 6-L). If local hospitals merge their organizations and assets, or enter into a formal agreement regarding the division of services, they can each provide only those specialized services for which they are best suited (e.g., one hospital provides obstetrical services, another delivers long-term care). These arrangements may then help subsidize the continued provision at each hospital of

Table 6-5—Nonmetropolitan Hospitals[a] Under 300 Beds in Multihospital Systems by Bed Size and Ownership, 1987

	Ownership			
Bed size	Government	Nonprofit	Profit	Total
6-24......	8	23	6	37
25-49.....	26	95	25	146
50-99.....	24	129	64	217
100-199...	13	88	53	154
200-299...	3	25	8	36
Total...	74	360	156	590

[a] Community hospitals defined here as all non-Federal, short-stay, nonspecialty hospitals (see app. C).

SOURCE: Office of Technology Assessment, 1990. Data from American Hospital Association's 1987 Annual Survey of Hospitals.

Box 6-L—Example of a Local Hospital Merger

In the 1970s, two 150-bed hospitals in a community of 50,000 residents on Michigan's remote upper peninsula decided to merge to improve the provision of acute care in the region. They hoped to create a more favorable image among area physicians, who were then referring patients to hospitals 200 or more miles away. After the merger, a new 144-bed facility was built adjacent to the old building of one hospital (Saint Luke's). The second hospital was sold to the State and later converted to a veterans' hospital. In 1984, a new outpatient cancer treatment facility was opened at Saint Luke's, and an extended care center with a magnetic resonance imaging scanner was planned for completion in 1987. Between 1984-85, hospital admissions increased 10 percent while other area hospitals were noticing declines (*274*).

essential services, such as emergency care, that it may be inappropriate to centralize.

Success of these arrangements is affected by:

- traditions of institutional independence and pride and the present extent of interinstitutional relationships, leadership, and community support;
- differences in ownership and corporate operating cultures of the institutions;
- the proximity and similarity of hospital service areas;
- area overbedding, service duplication and other operating inefficiencies in each hospital, and the resulting economic pressures;
- competition among hospitals for gaining area physician loyalty and support; and
- the growing threats of antitrust investigation and litigation.

Little is known about how common and how successful local mergers and service agreements between rural hospitals are.

Hospital-Physician Agreements

Hospital and physician services increasingly overlap. Hospitals may compete with the private practice of their medical staffs by opening and staffing their own ambulatory care centers; physicians may compete by offering ancillary and high-technology services in their private offices or in freestanding facilities.

In some cases, hospitals and physicians have decided to cooperate rather than compete, through joint ventures or other affiliations. The joint venture is a legally enforceable agreement involving financial speculation and risk for two or more parties in order to conduct a new business, most often out-of-hospital services. Like diversification, joint ventures with physicians may help the hospital strengthen its referral base for inpatient admissions and outpatient specialty care. Common ventures are diagnostic imaging centers, laboratories, ambulatory surgery centers, and leasing facility space. Some hospitals have also sold physicians a stake of minority ownership in their facilities, intending to strengthen physician referral loyalties and encourage maximization of hospital resources (*471*). Joint ventures are often corporations or partnerships in which the hospital assumes the greater risk as general partner, while the physicians are limited partners. These agreements may encounter some legal obstacles (see ch. 7).

Hospital-physician joint ventures are relatively new and few. A 1984 survey by AHA found fewer than 12 percent of hospitals (both urban and rural) reporting such arrangements, and these were predominately ventures creating prepaid medical care plans. Cities with populations of 250,000 or more were most likely to have hospitals with established joint ventures (*401*).

Hospitals also attempt to bond physicians by offering incentives that capture most of their inpatient admissions and referrals to outpatient services, and reduce competition from urban hospitals. Typical incentives are:

- office space and equipment;
- subsidized malpractice insurance;
- patient referrals from hospital satellite centers or through managed care contracts;
- management services (patient billing, marketing support, financial counseling);
- continuing education; and
- guaranteed income or cash incentive compensation.

A recent study asked physicians in nine rural midwestern communities which factors were important in selecting a hospital for practice. Support services of highest interest included accredited continuing education, hospital liaisons to ease communications with administration, medical staff offices with effective support and communications, and assistance in developing patient information and satisfaction surveys. Services noted of least interest were billing services and opportunities to participate in managed care arrangements and joint ventures (*534*).

SUMMARY OF FINDINGS

Many rural providers have found effective means of adapting to changes in their environment. There are numerous examples of efforts by rural hospitals, CHCs, and other facilities to support effective change. Many have found ways to strengthen facility solvency and stabilize operations in the short term (e.g., renewed fundraising, tougher collection policies). Also, many rural facilities have instituted strategies that reconfigure their organizational and service structure for the longer term. These efforts include converting or diversifying service bases to address changing utilization and revenue patterns, and joining alliances or multihospital systems to share resources and lower financial risks.

Some strategies have been used widely and successfully. The number of rural hospitals, for example, that have become swing bed providers has grown to about half of those eligible, allowing these facilities to diversify away from declining acute care utilization and meet growing post-acute care demands.

Other strategies have been tried with more limited success. For example, rural hospital membership in multihospital systems appears to be declining. It is not clear whether certain types of rural hospitals are more likely to benefit from inclusion in multihospital systems.

Little is known about the success of many efforts, and no effective way now exists to predict and communicate their success. Also, little opportunity is available for communities to compare and exchange ideas. Examples of apparently successful strategies include improvements in leadership and management, hospital conversions to alternative health facilities, local hospital mergers, hospital-physician arrangements, and CHC consortia and categorical care initiatives.

Other rural providers have not availed themselves of helpful methods and strategies, in part because it appears they have been slow to accept necessary change. For example, despite significant declines in inpatient utilization (see ch. 5), many rural hospitals remain full-service acute-care facilities, apparently without the will or resources to thoroughly examine their roles and capabilities and make significant structural changes.

Chapter 7

Regulatory and Legal Concerns for Rural Health Facilities

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Chapter 7

Regulatory and Legal Concerns for Rural Health Facilities

INTRODUCTION

Rural facilities wishing to improve their efficiency and financial condition, and enhance their ability to deliver more appropriate and accessible services, cannot always pursue the strategies they prefer. This chapter discusses some of the Federal and State laws and regulations that may impede them.

FEDERAL ISSUES

Medicare Conditions of Participation

In order to participate in the Medicare program, hospitals and other health care facilities must meet certain "conditions of participation," intended to ensure that facilities serving Medicare patients meet minimum standards of quality, regardless of where they are located.[1] Medicare conditions for hospitals define what provisions must exist with regard to governance, quality assurance, utilization review, medical and nurse staffing, clinical and support services, and the physical environment (e.g., facility specifications). The standards also describe what services a hospital participating in Medicare may deliver. The participating hospital must comply with applicable Federal health and safety laws, and its facility and personnel must be licensed or meet other standards set by the State. In most States a hospital's accreditation by the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) is acceptable for meeting conditions of participation. However, many small rural hospitals are not JCAHO-accredited;[2] these facilities must be approved to participate in Medicare by State government agencies (51 FR 22042).

Some requirements set by the conditions of participation (or resulting from their interpretation) are viewed by many rural facilities as particularly burdensome, vague, irrelevant to their settings, or limiting to the effectiveness of certain services.

Staffing Requirements—Medicare requires that hospitals provide 24-hour nursing service furnished or supervised by a registered nurse (RN) in each department or unit of the facility, including the emergency room. Hospitals must also use licensed laboratory and radiology technicians, and they must have a full-time director of food and dietary services. Small rural hospitals may have difficulty recruiting or affording such skilled staff, or they may not have enough patients to justify the presence of so many staff.[3] Moreover, complex requirements for assuring quality of care (51 FR 22042) require several administrative committees that small medical staffs may find excessively burdensome.

Facility Requirements—Medicare requires hospitals to meet standards for architectural configuration and physical environment, many of which were developed by the National Fire Protection Association (51 FR 22042). Meeting these building standards (e.g., having emergency power and water supplies and building corridors of a minimum width) can add significantly to rural hospital renovation costs.

Administrative Requirements—Requirements for quality assurance, utilization review, and medical record services (51 FR 22042)—intensified by payer-induced incentives to monitor quality and utilization—have resulted in increased need for documentation, leading to longer work hours for administrative staff in many health care facilities (*578*). Paperwork is generally not reimbursable by payers, so facilities must absorb the related increase in staff costs. Many small rural facilities may lack the administrative depth and financial stability to adequately meet these requirements.

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[1] Facilities receiving Medicaid payments must meet similar conditions of participation.

[2] In 1987, 38 percent of all rural hospitals (compared with 11 percent of urban hospitals) were not accredited by JCAHO. The proportion rises to nearly 60 percent of rural hospitals with 25 to 49 beds and 80 percent of those facilities with fewer than 25 beds. Of urban hospitals, 30 percent with 25 to 49 beds and 84 percent with fewer than 25 beds were not JCAHO-accredited (*625*).

[3] These staffing requirements may be misunderstood by some hospitals, and not all small rural hospitals may be aware of certain flexibilities under the conditions for participation that may be granted under these situations. For example, under certain circumstances, temporary waivers of the 24-hour nursing staff requirement may be granted to rural hospitals with 50 or fewer beds found to be out of compliance with conditions of participation (42 CFR 1988 ed. 488.54).

Home Health Services—Hospital-based home health programs in some rural areas have difficulty complying with Medicare regulations because they lack a full-time RN director (*219*). Some rural local health departments with home health agencies have also had difficulty justifying and affording a full-time RN who is responsible solely for the home health service (*519*). Other rural home health agencies have expressed concern about their ability to obtain the required qualified instructors to conduct classroom teaching for home health aides (*279*).

Swing Beds—Some rural hospitals believe that Federal regulations on swing beds are too stringent or unclear. To qualify for swing-bed reimbursement, patients must meet the same standards of medical need as patients who qualify for reimbursement in skilled nursing facilities. Hospital patients discharged from acute care who need transitional care less intense than skilled nursing care are thus ineligible for Medicare swing-bed reimbursement (*194*). This creates a gap in health care coverage, particularly in areas with no easily available home health services. Hospitals also complain that Medicare intermediaries[4] inconsistently interpret billing instruction manuals when classifying swing-bed patients as receiving skilled or intermediate care, creating confusion and limiting swing-bed use (*732*).

Rural Health Clinic Certification

Faced by increased financial pressures, rural health facilities are seeking ways to enhance reimbursement under Medicare and Medicaid. Recent congressional actions to improve reimbursement for certified rural health clinics (RHCs) (see ch. 3) have renewed provider interest in becoming or remaining certified as RHCs. However, providers often lack knowledge about the program or are concerned about RHC regulations. Major concerns include:

- *Delays in certification*—Many providers seeking RHC certification report that the application process is burdensome and lengthy, often lasting 6 or more months (*87,713*).
- *Discontinuance of billings*—Providers must stop billing Medicare and Medicaid while awaiting RHC certification, creating possible cash flow problems for smaller providers heavily dependent on such sources of payment. (Once certification is received, RHCs are entitled to retroactive reimbursement under the new form of payment.)
- *Administrative requirements*—The paperwork burden necessary to complete extensive cost reports and other requirements may be overwhelmingly complex for small unsophisticated RHCs with few administrative staff. Such centers may have to obtain costly outside accounting and financial assistance. RHCs can also encounter operational difficulties when States conduct annual recertification surveys without prior notice. Small centers where staff handle both administrative and clinical duties may be unable to fulfill all of their clinical obligations during unannounced recertification visits (*713*).
- *Requirements for midlevel practitioners*—A midlevel practitioner must be on site at an RHC at least 50 percent of the time the facility is open. (Congress reduced this requirement from 60 percent in 1989 (Public Law 101-239).) This requirement may be difficult for some clinics to meet. First, some RHCs have problems recruiting and retaining midlevel practitioners due to supply shortages, or due to restrictions in some States that affect the ability of midlevel providers to practice medicine (see ch. 12). Second, rural providers with several clinic sites that share midlevel practitioners on a part-time basis may be unable to qualify each site as an RHC, because the midlevel practitioners may not always be available at each site at least 50 percent of the time the center operates.
- *Limited guidance for provider-based clinics*—Health Care Financing Administration (HCFA) regulations for RHCs have focused on freestanding clinics (the vast majority of RHCs). Some observers report that the regulations lack sufficient guidance for provider-based sites (e.g., in hospitals or skilled nursing facilities) on acceptable methods of determining reasonable costs for reimbursement (*523*). Provider-based clinics are supposed to receive full cost-based reimbursement (see ch. 3).

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[4] Medicare intermediaries are fiscal agents (typically Blue Cross plans or commercial insurance firms) under contract to the Health Care Financing Administration for administration of specific Medicare tasks (e.g., determining reasonable costs for items, making payments).

Performance Standards for Community Health Centers

All community health centers (CHCs) are expected to meet certain administrative and clinical standards of performance set by the Bureau of Health Care Delivery and Assistance (BHCDA) of the U.S. Public Health Service. Such measures include minimum productivity levels (e.g., numbers of patient encounters per physician, physician-to-patient ratios) and maximum ratios of administrative costs as a percent of total costs.

Small rural CHCs, particularly those in frontier areas, may find it difficult to meet these standards. In a survey of frontier centers in five States covering the years 1985-87, CHCs had higher proportions of administrative costs, higher medical costs per visit, and lower proportions of charges to costs than BHCDA considers acceptable. However, the centers on average met the standard for provider productivity (*204,350*). Recently, BHCDA has considered suggestions for changes in CHC performance measures that are more sensitive to the diverse populations served by centers (*477*).

Tax Laws Affecting Health Facilities

Essentially all of the Federal tax laws affecting the delivery of health care concern the activities of tax-exempt organizations and their affiliates. Exclusions, deductions, and credits are not generally available under Federal tax laws for the 10 percent of rural hospitals that are proprietary. This section discusses how such tax provisions affect the survival and expansion strategies of nonprofit rural hospitals.

Tax-Exempt Organization Status

Because the promotion of health is considered a charitable purpose, nonprofit hospitals and other health care providers generally have no difficulty obtaining tax-exempt organization status. However, a hospital providing services to other hospitals can endanger its exempt status. For example, in order for a hospital cooperative to retain its tax-exempt status while providing and receiving shared services:

- it may provide only the following "permissible" services: data processing, purchasing, warehousing, billing and collection, food, industrial engineering, laboratory, printing, communications, record center, personnel, and clinical services;
- it may provide such services only to two or more exempt hospitals or to government owned and operated hospitals ("permissible recipients"); and
- it must be organized and operated on a cooperative basis, it must have as members or shareholders only permissible recipients, and it must allocate or pay all net earnings to its patron hospitals on the basis of services performed for the patron hospitals (Internal Revenue Code Section 501 (e)).

The list of permissible services is narrow and omits many services that rural hospitals in cooperatives and other arrangements might efficiently share (e.g. management, laundry, and housekeeping services). The penalty for providing nonpermissible services is stiff. If a shared service organization (e.g., a cooperative) provides any unlisted services, or if it provides services to any institution that is not a hospital, the organization will lose exemption for all of its services. Unlike other exempt institutions, shared service organizations are not simply subject to tax on such unrelated activities.

Efforts to recruit and retain well-qualified medical staff can also endanger exempt status. To attract physicians, a hospital may wish to offer loans, income guarantees, practice facilities, and other benefits. Offering incentives may endanger a hospital's tax exemption by implying that the hospital is unduly furthering the interests of private individuals. Under Treasury regulations, a tax-exempt health provider must meet the following tests:

- it must be organized and operated exclusively for exempt purposes;
- no part of its net earnings may inure to the benefit of persons having a personal and private interest in the organization; and
- it must demonstrate that it is not organized or operated to benefit private interests (U.S. Treas. Reg. sec. 1.501).

The Office of the General Counsel of the Internal Revenue Service (IRS) has indicated that physicians recruited as employees, or as individuals with a close professional relationship with a hospital, are subject to review under the inurement proscription (*300*).[5] Hospitals also must demonstrate that their operations do not benefit private interests more than incidentally. In theory, this standard may not be difficult to meet. For example, the IRS has ruled that a rural area with a significant need to attract physicians could use community funds to construct a medical office complex, because any personal benefits physicians might derive would be incidental to the community benefit (*298*). However, the analysis that must be done to demonstrate this condition can be difficult. It requires that benefits provided by the physician to the hospital and the community be quantified and compared to the recruitment or retention benefits provided to the physician. This is not an easy task, since community benefits are often subjective and not easily quantifiable. Uncertainty about what hospitals may offer to attract and retain physicians is exacerbated by the recent IRS announcement that exempt hospital-physician relationships will be subject to heightened scrutiny.

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[5] General Counsel Memoranda are not binding but indicate how the IRS is likely to rule on an issue.

Unrelated Business Income

Tax-exempt organizations are subject to Federal tax on income from any regular business that is not substantially related to the organization's charitable purpose (IRS Code Sections 511(a), 512(a)(1), 513(a)). These activities may be restricted not only by imposing tax, but also by concerns that status of the facility (or of bonds financing it) may be endangered. Recent proposals by Congress broaden the types of income classified as unrelated and limit the deductions permitted in computing taxable income (e.g., from hospital gift shops, royalties, and rent from organizations hospitals control).

In general, services provided by hospitals to physicians in private practice or to their patients generate taxable income. Such services include reference laboratory, administrative, and pharmacy services (*294,295,296,299*). However, the IRS has recognized to a limited extent that rural hospitals meet unique community needs that justify tax exemption of such activities. For example, a hospital's reference laboratory service may be exempt if the hospital is geographically isolated and the services are not reasonably available from commercial sources (*299*). This test is fact-specific, however, and does not provide general guidance for rural hospitals.

Although in considering these issues the IRS has indicated no "across-the-board" recognition of a rural hospital's role, courts have been sympathetic to rural hospitals. For example, in *Hi-Plains Hospital* v. *United States*, the court held that a rural hospital's pharmacy sales to private physicians' patients were not taxable income because the pharmacy's availability was an inducement to practice medicine in the hospital, and thus it contributed to the goal of making medical services available (*257*). Income from rent of office space to physicians has not been considered taxable because locating physicians on the hospital campus is, in the IRS's view, substantially related to the hospital's provision of medical care, whether the hospital is urban or rural (*297*).

Tax-Exempt Financing

As noted in chapter 5, access to tax-exempt financing is crucial for many nonprofit rural hospitals. Under the IRS Code, interest income from new bonds issued after August 1986 to finance tax-exempt health facilities is exempt from Federal tax if:

- all of the property obtained with the proceeds of the bonds is owned by the tax-exempt provider, and
- no more than 5 percent of the facilities financed by bond proceeds are used by a nonexempt person or in an unrelated trade or business (IRS Code Sections 103, 141, 145).[6]

Fraud and Abuse Regulations

The Antikickback Provisions

The Medicare and Medicaid antikickback provisions (42 U.S.C. § 1320a-7b) were first adopted by Congress in 1972. The provisions were intended to provide penalties for certain practices that have been long considered unethical by professional groups and that contribute significantly to the cost of the Medicare and Medicaid programs. The regulations prohibit offering, soliciting, paying, or receiving "any remuneration (including any kickback, bribe, or rebate) directly or indirectly, overtly or covertly, in cash or in kind" in exchange for or to induce any of the following actions:

- referring an individual to a provider for the receipt of an item or service that is covered by Medicare or Medicaid; or

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[6] Recent proposals by Congress have also called for linking a hospital's level of indigent care to continued eligibility for tax-exempt financing.

- purchasing, leasing, or ordering any item or service that is covered by Medicare or Medicaid.

If read literally, these regulations can be viewed as prohibiting a number of relatively common activities. The provision of free coffee by a hospital to members of its medical staff could be interpreted as an inducement to the physicians to admit their patients to the hospital. Although this particular common practice is unlikely to warrant prosecution, health care providers may find it difficult to clearly distinguish between permitted and prohibited conduct.

Many hospital strategies to recruit or retain physicians (e.g., offering physicians financial assistance in establishing a practice) can trigger antikickback provisions. Such arrangements might be viewed as the furnishing of compensation to a physician by an entity to which the physician refers patients.

The ownership of hospitals by physicians may also be viewed as a violation of antikickback laws if these physicians tend to refer patients to the hospitals they own. These "self-referrals" by physicians may be especially prevalent in rural areas where the physician-owned hospital is the only local hospital.

In other rural communities, some for-profit multihospital chains (e.g., Hospital Corp. of America and American Medical International) have explored the possibility of selling unprofitable facilities to members of the hospitals' medical staffs (*584*). Where a rural hospital is unprofitable, the members of its medical staff may be the only persons with sufficient capital to take over the facility and prevent its closure. Also, physician ownership may mean there is sufficient interest by local physicians in maintaining a practice at a nearby hospital, and that at least some of the income from the hospital's operations will remain invested in the community.

"Safe Harbor" Regulations

In an attempt to resolve some of the confusion surrounding the meaning and scope of the antikickback statute, Congress recently directed the Secretary of the Department of Health and Human Services (DHHS) to develop regulations specifying "safe harbor" practices that would not be considered violations of the statute (Public Law 100-93). The proposed regulations were issued in January 1989 (54 FR 3088), but they have not resolved the uncertainty. For example, one of the proposed "safe harbors" would permit a physician to receive dividends from investments in large, publicly traded companies that operate entities to which the physician refers patients.[7] The legality of this practice, however, was never seriously questioned. What had been (and remains) uncertain was the permissibility of physician investment in hospital-physician joint ventures, or physician ownership of community hospitals. Similarly, the proposed regulations would protect the purchase by a physician of the practice of another physician who is retiring or is leaving the area. However, the regulations say nothing about whether a hospital may purchase a physician's practice—a question that is likely to be far more important for the rural hospital trying to maintain its patient base. Final "safe harbor" regulations are expected to be published in 1990.

Antitrust Issues

Mergers and Acquisitions

Some rural hospitals may find it increasingly desirable to combine their assets and operations. However, recent increases in government oversight and enforcement of hospital consolidation activity by the U.S. Justice Department and by the Federal Trade Commission (FTC) raise important antitrust issues for these rural hospitals. Section 7 of the Clayton Act (15 U.S.C. 12-27) prohibits mergers or acquisitions that may substantially lessen competition or tend to create a monopoly. The Clayton Act's application requires a prediction of the likely effect of the merger or acquisition on consumer welfare. Guidelines for evaluating this effect were issued in 1984 by the Antitrust Division of the Department of Justice.

The principles and standards contained in these merger guidelines have recently been applied in two cases involving mergers of nonprofit hospitals—one in Roanoke, Virginia, the other in Rockford, Illinois.[8] In each case, the Federal Government sought to prevent the consolidation of two nonprofit hospitals in suburban communities with few acute-care facilities. Both cases were decided in early 1989. In the Rockford case, the court found that the merger violated the antitrust laws; in the Roanoke case, the court held that it did not. Both decisions have since been upheld by courts of appeal.[9] The legal standards arising from these conflicting decisions are outlined below.

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[7] Rural facilities are exempted from legislation passed by Congress in 1989 that denies Medicare payment for clinical laboratory services if the referring physician has a financial interest in, or receives compensation from, the entity that provides the service (Public Law 101-239).

[8] Prior to 1988, the Federal agencies responsible for enforcing the antitrust laws had challenged only three mergers or acquisitions involving general medical and surgical hospitals.

1. Product Market Definition—The first step in merger analysis is the definition of the relevant product markets. In the two recent hospital merger cases, the relevant product market alleged by the government was acute inpatient hospital care. Both hospital defendants, however, argued that the appropriate market included both inpatient and outpatient care provided by all health care providers. The court in the Rockford case adopted the government's narrower market; the court in the Roanoke case adopted the defendants' broader market.[10] The product market definition was critical to the outcome of both cases. The court's adoption of the Roanoke hospitals' broad market definition meant that more providers (such as outpatient clinics, urgent centers, and even doctors' offices) would be viewed as competitors to the merging hospitals, and that the elimination of one of the hospitals would have less competitive impact. The opposite was true in Rockford; the court found that because there would be fewer hospitals if the merger took place, the loss of even one could have significant anticompetitive effects. The decision by other courts in the future regarding the appropriate product market definition may have a significant impact on the viability of consolidation as an option for rural hospitals.

2. Relevant Geographic Market—The definition of geographic markets of hospitals is the second element in a merger case. The courts in the Rockford and Roanoke cases used similar evidence to define the geographic market, but the results were remarkably different. In the Roanoke case, the court concluded that the relevant geographic market comprised 16 counties and 3 independent cities of Virginia, and 3 counties of West Virginia. This conclusion was based on the court's finding that the hospitals involved drew a "substantial" number of patients from outside the immediate vicinity. In the Rockford case, the court defined the geographic market as the area representing about 90 percent of the admissions of the defendant hospitals. Factors involved in this decision included:

- the extent to which physicians admitted patients to nearby hospitals,
- usage of the hospitals by non-Rockford patients needing specialized care,
- the number of hospitals where individual physicians had admitting privileges,
- data on patient residence and destination for receiving services, and
- the physical geography of the area.

3. Market Structure—A third important component of merger analysis is an assessment of the competitive structure of the market and the way the merger will alter that structure. This is done by identifying the competitors in the market and estimating the market share of each before and after the merger. According to the merger guidelines, a postmerger projected market share over a threshold amount[11] implies concern that the merger may violate the antitrust statute. The merger guidelines were used by the courts in the Rockford case.

Most of the hospital markets in rural areas are considered to be highly concentrated. This is because most rural communities cannot support the minimum number of independent hospitals that must be in a market to keep the market share of combined hospitals below the threshold amount.[12] Consequently, mergers or acquisitions involving competing hospitals in nonmetropolitan areas will often create an apparent violation of the merger guidelines.

4. Other Factors Affecting Concentration—Other factors commonly considered by the courts in assessing the competitive effects and the legality of a hospital merger include:

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[9] Subsequently, in the Roanoke case, the government decided to drop its opposition to the hospital merger.

[10] See *United States* v. *Health System*, 1989-1 Trade Cas. 68,451 (W.D.Va. 1989) ("Roanoke"); *United States* v. *Rockford Memorial Corp.*, 1989-1 Trade Case. 68,462 (N.D.Ill. 1989) ("Rockford").

[11] The Herfindahl-Hirschman Index (HHI) sums the squares of each competitor's market share. A merger may violate the antitrust statute if the postmerger HHI exceeds 1,800, and if the merger increases the HHI by 50 points.

[12] For example, to keep the postmerger HHI below 1,800, a market would have to have at least six equally sized hospitals.

- *Barriers to entry*—Barriers to entry make merger approval less likely. If there are few barriers to entry, it is less likely that incumbent hospitals could exercise control of the market. State certificate-of-need (CON) regulations and insufficient demand for services render entry by new hospitals unlikely in many rural markets.
- *Nature of competition in the market*—The courts in Rockford and Roanoke recognized that hospitals generally have been forced to become more competitive; the court concluded in the Rockford case that hospitals in the market could benefit by engaging in anticompetitive activities (e.g., price fixing) at the expense of consumer welfare.
- *Financial condition of the merging hospitals*—If one of the merging hospitals in a market is likely to fail in the near future and is unlikely to successfully reorganize under the Bankruptcy Act, and there are no less anticompetitive alternative purchasers, courts may find the merger more acceptable (the so-called "failing company defense").
- *Likelihood that the merger will allow the hospitals to achieve efficiencies that could not be obtained individually*—The procompetitive benefits of certain otherwise unattainable efficiencies may outweigh the potential anticompetitive effects of a merger. The savings from such efficiencies will vary in each case; courts reviewing mergers have balanced claims for efficiencies against the anticipated anticompetitive effects.

Although the legal issues and factual settings in the recent Rockford and Roanoke cases were remarkably similar, the courts' decisions are diametrically opposed on virtually every major issue. The legality of any hospital merger inevitably will depend on the competitive environment in which the merging hospitals exist, and at present there are few consistent legal guidelines to help hospitals assess the legality in their specific situations.

Recent action by the FTC may make more costly the mergers and acquisitions of many larger rural health care facilities. In late 1989, the FTC began requiring entities (including hospitals) interested in acquiring another entity to pay a $20,000 filing fee as part of FTC's premerger notification requirements. For hospital mergers, the filing fee is required if:

1. the acquiring entity has at least $100 million in total assets or net patient revenue, and the other entity has at least $10 million in assets or net patient revenue; and
2. the total value of the assets actually bought in the acquisition will be at least $15 million.

Medical Staff Credentialing

Antitrust cases brought against hospitals and their medical staffs by physicians who have been denied medical staff privileges are perhaps the single largest category of antitrust cases involving health care providers. In these cases, the issue is whether the hospital and its medical staff conspired to prevent the excluded physician from competing for patients needing hospital care. In areas with many physicians, the exclusion of a single physician is unlikely to result in an antitrust judgment.[13] Cases in which the hospital board unilaterally decides for valid reasons that a physician should be denied privileges also generally do not incur antitrust liability.

More usual antitrust cases involve hospitals that have entered into exclusive contracts with a physician or physician group (most commonly for such services as anesthesiology, emergency medicine, pathology, and radiology). Where the hospital bends to pressure from the medical staff to insulate certain practitioners from competition by giving them an exclusive contract, and where the hospital has a dominant share of the market, it may invite an antitrust action. Rural hospitals are especially susceptible to this threat because of their large market share. In a Montana case, for example, anesthesiologists on the staff of a hospital that had 84 percent of the market share for general surgical services had threatened to leave the hospital unless they got an exclusive contract. The contract resulted in the exclusion of a nurse anesthetist, and the anesthesiologists subsequently increased their annual earnings by 40 to 50 percent. Given these circumstances, the court found that the exclusive contract unreasonably restrained trade in violation of the antitrust laws.[14]

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[13] See *Ezpeleta* v. *Sisters of Mercy Health Corp.*, 621 F. Supp. 1262 (N.D. Ind. 1985), aff'd, 800 F.2d 119 (7th Cir. 1986).

[14] See *Oltz* v. *St. Peter's Community Hospital*, 1988-2 Trade Cas. (C.C.H.) 68,345 (9th Cir. 1988).

The argument that a competing physician was excluded based on review of that physician's record by the hospital medical staff is not always a successful defense, even in a State with a statute encouraging such peer review. In an Oregon case involving this issue (see *Patrick* v. *Burget*, 108 S.Ct. 1658 (1988)), the Supreme Court held that the State of Oregon did not actively supervise peer review activities, nor did it have a mechanism for overturning inappropriate peer review decisions. Therefore, the Court concluded, such activities were not immune from antitrust challenge.

Joint Ventures

Hospitals that have a very large market share for hospital services in a particular area may be in joint ventures (e.g., for provision of home medical equipment) that effectively limit competition by suppliers not included in the ventures. Likewise, a group of rural physicians who account for a majority of the physicians in a particular community may face antitrust risks associated with joint ventures. Agreements with joint venture partners to refer all patients for durable medical equipment or home health to the venture, for example, may have antitrust implications.

STATE ISSUES

Facility Licensure

State licensure standards are intended to ensure that patients using licensed facilities will be provided care of at least a minimum level of safety and quality. (In addition to receiving State licensure, facilities wishing to be certified by Medicare and Medicaid, as noted earlier, must meet standards set by JCAHO or State licensing agencies mandated under Medicare conditions of participation.) These standards, however, may sometimes inhibit rural hospitals from undertaking some activities to enhance their survival.

- *Operating room requirements*—States generally require all licensed hospitals to have fully equipped operating rooms. Even if a small rural hospital no longer performs surgeries due to declines in demand and availability of surgeons, it must continue to maintain surgical facilities and staff.
- *Hospital-based SNF requirements*—Some State licensure laws pertaining to hospital-based skilled nursing facilities ("distinct part SNFs") may require SNFs to have their own nurses' station apart from the hospital's acute-care nurses' station. Medicare certification also generally requires hospital SNFs to remain distinct units with separate beds and staff. Complying with such standards may result in both SNF and acute-care nursing staff being underused, especially in small rural hospitals whose acute-care census is low.
- *Personnel training requirements*—Some States limit the use of multiskilled allied health care personnel. Many rural hospitals incur higher costs because they must, according to State licensure laws (and Medicare conditions of participation), employ several full-time individuals to perform tasks that a single professional could do if appropriately trained and licensed.
- *Higher license fees*—Certain States reportedly have instituted significant increases in fees for facility licenses, CON applications, and other business requirements for health care facilities. These fees are proportionately more difficult for small providers than for large providers to pay.

Little is known about the costs these regulations entail, and what impact they have on rural hospital efforts to preserve quality of care, maintain operations, and adapt to environmental changes.

Where States have made substantial changes in response to rural hospital concerns, hospitals may still be faced with incompatible Federal certification regulations. The State of Montana recently requested a waiver of Medicare conditions of participation and certain reimbursement policies from HCFA that would permit the State to create a new class of rural facilities (medical assistance facilities) as an alternative to a rural hospital (see ch. 8). Changes in State licensure laws are sufficient to permit such facilities to function, but changes in Medicare certification requirements are probably necessary to make them financially viable.

Certificate-of-Need Requirements

In 1972, the Federal Government required States to begin instituting CON programs to more effectively control health care capital expenditures and other medical costs. In general, CON was seen as a way of limiting unnecessary investment by hospitals and other health facilities in new beds, plant, and equipment. States were required to establish health planning agencies to conduct CON reviews of health facility capital projects, and develop regional plans for rationally allocating and distributing limited resources and services (Public Law 93-641). In 1987, Federal requirements for State health planning and CON review were repealed.

With the end of Federal oversight, many States have modified or eliminated their CON laws. A 1989 survey found that 11 States have eliminated their CON programs. In addition, some States have (or are considering) CON laws that exempt certain facilities and services from review (*34*). A number of States without CON laws are limiting expansion in other ways (e.g., through moratoria) on certain new services. Only seven States have no limits at all on the numbers of skilled nursing, swing, rehabilitation, psychiatric, and alcohol/drug treatment beds in general acute-care hospitals (*474*).

State mechanisms to limit expansion may conflict with survival strategies of rural hospitals. For example, a State with a moratorium on new SNF beds might not permit a rural hospital to convert unused acute-care beds to long-term beds if the statewide supply of SNF beds is already at the regulatory limit.[15] Many health facilities view CON thresholds for capital expenditures (the minimum expenditure levels at which the CON review and approval process is invoked) as too low and the related application process too burdensome and lengthy, threatening their access to capital.

Also, some States make swing-bed conversions contingent on a hospital's acute-bed capacity or the availability of nursing home beds in the area. Kentucky, for instance, places limits on hospital Medicaid participation by restricting the number of swing-beds in a hospital to 25 beds or 10 percent of the hospital's acute-bed capacity (whichever is greatest), but not to exceed 40 percent of acute-bed capacity (*474*).

On the other hand, CON in some States may serve to maintain the continued existence of some rural facilities and services by giving them special consideration. Many rural facilities concerned about competition support CON efforts and other restrictions that prevent other facilities from expanding.

A few States have amended (or are currently considering amending) their CON laws to enable rural hospitals to more easily diversify into new services or to convert to alternatively licensed health care facilities. For example, some States have raised the CON review thresholds for certain capital expenditures. Others have exempted certain projects or facilities from CON review altogether. Other States now allow qualified rural hospitals to convert up to a certain number of acute-care beds to swing-bed status without CON review (see ch. 6) (*440,450*).

Property Tax Laws

Requirements for exemption from State and local property tax laws generally are more restrictive than conditions for exemption from Federal income tax. Only 17 States and the District of Columbia have enacted laws that expressly recognize the delivery of hospital care by a nonprofit entity as sufficient for property tax exemption. State and local laws typically require a property to be owned by a charitable organization and to be used exclusively for charitable purposes. Under States having "all-or-nothing" requirements, use of any part of a property for nonexempt purposes or on behalf of nonexempt persons renders the entire property subject to tax. Many States, however, permit proration of a property between exempt and nonexempt portions for tax purposes.

In addition, many State and local legislative, administrative, and judicial initiatives have responded to needs for increased revenues, and complaints by small businesses of unfair competition from the nonprofit sector, by proposing to revoke tax exemptions. Recent challenges to property tax exemption have been mounted in California, Missouri, Pennsylvania, Tennessee, Texas, Utah, and Vermont (*202,271*). Charitable organizations have been challenged to justify their exemption by showing public benefits provided, such as the amount and availability of uncompensated care.[16] Following a recent Utah decision, local taxing authorities in several States have attempted to revoke property tax exemptions held by some nonprofit hospitals within their jurisdictions. In some States, hospitals have agreed to donate cash and services in lieu of paying property taxes (*397*). Proposals have also been made that would require payments to local governments to cover costs for municipal services (*467*).

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[15] Moratoria on additional SNF beds in many States is often attributed, in part, to efforts by nursing homes to prevent competition from acute-care hospitals providing long-term care services (*474*).

[16] See *Utah County* v. *Intermountain Healthcare Inc.*, 709 P.2d 265 (Utah 1985), and *Medical Center Hospital of Vermont* v. *City of Burlington*, No. 87-501; Oct. 13, 1989.

To date, such actions have been primarily in urban areas. This may be because the community benefits provided by a rural hospital are more readily apparent to local taxing authorities. But loss of exemption from property tax is nonetheless an ominous spectre for rural hospitals, particularly those with a shaky financial foundation.

Public Hospital Issues

Rural government-owned hospitals, whether entities of a county, district, township, or other municipal authority, are confronted by State statutory, judicial, and constitutional impediments to their ability to diversify and engage in joint ventures.

Statutory Restraints on Diversification

Rural public hospitals, like public hospitals generally, are creatures of their enabling statutes. Public hospital enabling acts are, almost without exception, strictly construed by State courts and attorneys general. The single most important restriction on the ability of public hospitals to diversify and to provide a full range of health care and nonhealth related services is based on State court interpretations of "Dillon's Rule," which reads as follows:

> Local governments have only those powers specifically granted by constitution or statute or necessarily arising by implications from the expressed powers (*177*).

The impact of this restrictive rule on public hospitals is considerable. As a result of this rule, a public hospital may engage in a specified activity only if its enabling act expressly empowers it to do so. But, because most public hospital enabling acts were drafted decades ago (often before the 1940s), the services empowered by their statutes are very limited. Thus, for example, many public hospitals are unable to own or operate a durable medical equipment company or provide nonacute care services.

State courts typically resolve any doubts about whether such powers exist against the hospital. For example, a 1982 opinion of the Alabama attorney general (see Ala. AGO 82-00510) provides that a public hospital has no clear authority to pay a physician interest-free loans or income guarantees. A 1985 Georgia court decision concluded that a county hospital did not have the power to operate a durable medical equipment business (*406*).

Saunders County
Health Services
HOSPITAL

Photo credit: Peter Beeson

Due to State enabling statutes, most publicly owned hospitals face strict limits on their ability to diversify services and compete for patients.

Statutory Restraints on Competition

Rural public hospitals are also confronted by the following statutory barriers to competition arising out of their restrictive enabling acts.

Extraterritoriality—Almost without exception, public hospital enabling acts prohibit municipal corporations or political subdivisions from exercising any authority, or owning or operating any property or business, outside of the geographical territory in which they are empowered to operate. For example, a hospital district wishing to establish a physician satellite clinic outside the boundaries of the district would probably lose a court challenge to this action. This effectively precludes the hospital from capturing primary and secondary care patients outside of the limited service area.

Board Composition—Most public hospital enabling acts expressly limit the number and types of individuals who may serve on the board of the public hospital. They often prohibit medical staff members, persons who do not reside within the boundaries of the municipality or political subdivision, and public hospital employees from serving on the board.[17] Such restrictions may make it difficult for some rural public hospitals to find trustees knowledgeable about hospital and health care issues.

Public Disclosure Laws—Most States have public disclosure laws that require public bodies, including government-owned hospitals, to hold open meetings and provide the public access to numerous records of the public body. Although these laws serve this purpose well, they also may place public hospitals at a severe competitive disadvantage. In a rural area with more than one hospital, a public hospital is disadvantaged by having sensitive business plans reported on the evening news or heralded on the front page of the local newspaper. In 1986, the California Legislature addressed this problem by amending the State's Hospital District Law to enable a district hospital board to order a closed session to discuss or deliberate on hospital "trade secrets" where necessary to initiate a new hospital service or program that would, if prematurely disclosed, create a "substantial probability of depriving the hospital of a substantial economic benefit."[18]

Certificate-of-Need Laws—Public hospitals typically are not empowered by their enabling acts to engage in the corporate restructurings that might be used to circumvent CON review of a major project in many States. The ability of private hospital competitors to do so thus may give them an important competitive advantage over public hospitals.

Investment Restrictions—Many State enabling acts place severe limitations on the types of investments in which public hospitals may place their funds. For example, the Illinois Investment of Public Funds Act prohibits public entities from owning stock for investment purposes.[19] In Alabama, public hospitals may only invest in "direct obligations of the United States."[20] Restrictions of this kind protect the public purse but also prevent public hospitals from placing hospital funds in higher interest-yielding investments.

Public Bidding Laws—Almost every State has a competitive bidding process that is applicable to public hospitals. The considerable delay and expense generated by these statutes may impede or prevent rural public hospital administrators from reacting to changing market conditions in their purchase of property and services.

Judicial Restraints

Decisions by public hospitals concerning the credentials of medical staff are reviewed by State courts, both to review the hospital's compliance with the bylaws procedures and to affirm the underlying merits of the decision. In contrast, so long as a private hospital follows the procedural guidelines set forth in its medical staff bylaws, courts in most States will not step in to second-guess the substantive decision of those hospitals.

Constitutional Restraints

Almost every State constitution prohibits municipal corporations, including public hospitals, from owning stock or serving as a partner with a private entity. This prohibition arises out of States' concerns about the commingling of public with private funds, and the potential "gift" of tax dollars that would enrich private individuals. Such absolute prohibition from equity ownership precludes almost all types of joint ventures between public hospitals and physicians or private hospitals. Thus, a method used successfully by private hospitals to encourage closer relations between hospitals and physicians and to access additional sources of capital is usually unavailable to public hospitals.

Possible Solutions

Amendments of State public hospital enabling acts and other statutes may aid public hospital efforts to expand their scope and array of activities to enhance their survival. Also, some public hospitals have created "parent-subsidiary" or "brother-sister" multicorporate structures to avoid statutory and constitutional constraints. These partial solutions, however, are not without their own problems. First, it may be unclear whether the newly created affiliate can be capitalized by the governmental body without violating the State constitutional prohibition on "public gifts." Second, the greater the control by the governmental body over the affiliate, the greater the likelihood that (for regulatory purposes) such transactions will be considered improper. The adoption of these structures is clearly not without legal risk.

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[17] See, e.g., Michigan Op. Atty. Gen. No. 6067, p. 646 (1982).

[18] See California Health and Safety Code, Section 32106.

[19] See Illinois, Rev. Stat. ch. 85 § 2401 et seq. (1983).

[20] See Alabama Code § 22-21-77(15) (1989).

A third issue involving public hospitals has been a national movement toward allowing public hospitals, through State enabling act amendments, to "convert" to private, nonprofit status by selling or leasing all of the public hospitals' assets and operations to newly created nonprofit corporations. Once legal authority to "convert" exists, the mechanics of conversion must be investigated. One of the major concerns in any public hospital conversion is the degree to which the nonprofit entity that operates the hospital will be accountable to the public after the conversion. Public concerns may include potential reduction of services, reduction or elimination of uncompensated care, and unreasonable "inside deals" between the public body and the new nonprofit hospital board. These concerns must be addressed expressly in either the lease or sales agreement between the public body and the new hospital corporation, or in the new hospital corporation's articles and bylaws.

SUMMARY OF FINDINGS

Federal and State laws and regulations governing delivery of services have created a number of concerns for rural providers.

Some State licensure rules and Medicare participation requirements are seen as inhibiting operations and strategies for effective change. Many rural hospitals, especially smaller ones in more remote settings, argue that standards for minimum staffing and service requirements are impractical to follow, because staff are unavailable, too costly, or cannot be justified due to insufficient patient demand. Some recent State efforts (e.g., in Montana) to alter licensure rules for struggling hospitals in isolated rural areas may face Medicare certification requirements that cannot accommodate anything less than a full-service, acute-care facility.

Eligibility requirements for Federal tax exemption are seen as endangering some survival strategies of rural hospitals. A rural nonprofit hospital's exemption from Federal income tax is threatened if it offers incentives to attract physicians that may be seen as unduly furthering the physician's private interests; or if it receives substantial income from any business not related in a major way to the hospital's charitable activities (e.g., sharing management services). In a time when many hospitals are considering participating in shared service cooperatives and diversifying into new services, the similar limits that apply to these ventures may inhibit hospitals from carrying out such strategies. Nearly one-half of rural hospitals are private nonprofit institutions, and loss of tax exemption for many would further weaken their financial condition.

Some referral practices that rural hospitals might undertake to maintain their patient base and retain physicians may be subject to Federal antikickback regulations. Because many providers consider the scope of antikickback rules to be vague, certain practices deemed to be "safe harbors" under the law have been proposed by DHHS. Uncertainty remains, however, over the legality of many practices such as physician investment in hospital-physician joint ventures, physician ownership of hospitals, and hospital purchase of physician practices.

Hospital mergers and physician relations are now facing greater scrutiny under Federal antitrust laws. The legality of any merger depends on the specific competitive environment of the merging hospitals. Legal decisions regarding Federal efforts to regulate hospital mergers, however, have brought opposing results even in factually similar cases, perpetuating the uncertainty in many hospital markets.

Federal performance and certification standards for some rural clinics are seen as inappropriate or overly burdensome. Some small federally funded CHCs, especially in remote areas, believe Federal performance standards governing administrative and clinical operations of all CHCs are irrelevant or too inflexible for their environments. Rural centers wishing to become certified rural health clinics believe the process of certification is unduly long, complex, and sometimes impractical.

State CON rules and other laws that place limits on the number of new long-term care beds are sometimes seen as preventing rural hospitals from converting away from acute care. Such restrictions in all but a few States are believed by some rural hospitals to restrict conversions of excess acute care beds to nonacute or other specialty care beds. Some

States, however, have changed their CON laws to allow hospitals to more easily convert beds or diversify into new services.

State and local property tax exemptions for hospitals and other providers are facing greater scrutiny. At least seven States recently have challenged property tax exemptions of hospitals and other providers. Loss of tax exemption might further endanger the financial viability of some small rural facilities.

Rural public hospitals face strict limits on their ability to diversify and compete. Strict State enabling acts and constitutional provisions are seen as inhibiting survival efforts of rural public hospitals when they:

- prohibit a public hospital's operation of related businesses;
- limit operations to a specific service area;
- limit trustees to residence in a specific area (possibly restricting the hospital's ability to find qualified governance);
- require public disclosure of sensitive business and marketing strategies; and
- place other restrictions on investments, medical staff credentialing, and joint ventures.

Solutions being considered by States to these restraints on public hospital activity are not without risk. For example, States that allow public hospitals to restructure to private, nonprofit corporation status may lessen the hospital's public accountability.

Chapter 8

Collaborative Opportunities Between Rural Health Facilities and Government

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Chapter 8

Collaborative Opportunities Between Rural Health Facilities and Government

INTRODUCTION

In recent years, many rural health care facilities have found that their prospects for survival are enhanced by working with Federal, State, and local governments interested in developing new approaches to improve facilities and services. This chapter will first discuss efforts by some States to conceptualize an appropriate or minimally acceptable array of services for rural communities. Second, the chapter examines work by some States, and more recently the Federal Government, to develop alternative delivery models for rural facilities. These efforts focus mostly on redefining what is meant by a "hospital" and rearranging the existing regulatory framework to enable rural hospitals—especially those that are financially troubled or are the only local facility—to have a structure more appropriate to local needs and capabilities. Next, it offers some unique examples by States to support the integration of health services by rural facilities. Finally, the chapter examines how some local governments in rural areas are finding ways to provide sorely needed tax support to area facilities.

DETERMINING A STANDARD OF SERVICES FOR RURAL COMMUNITIES

Ideally, the development of services and facilities that reflect local needs and conditions begins by determining the essential service requirements of a community. This task is not an easy one. Each rural community has its unique set of service delivery problems, resources, and priorities. Some small hospitals, struggling with declining utilization and poor operating margins, have considered severely limiting their scope of services. But for sole community providers serving wide and sparsely settled geographic areas with few health care alternatives, determining what services can be eliminated is difficult. Community health centers (CHCs) have traditionally been a major source of comprehensive primary care for the poor, but many CHCs face increasing demands for uncompensated care (see ch. 5) that may require them, too, to rethink the scope of services they can afford to provide.

At least two States have developed conceptual frameworks of basic services and delivery models that should exist in rural communities. These frameworks, described below, address such fundamental questions as:

- *Current scope*—What are the scope, volume, purpose, and effectiveness of services now being delivered? Who is delivering them?
- *Appropriateness*—Are the services appropriate for the current and expected level of demand and community capability to support them? Are they meeting basic health needs? Have the community's perceptions and feelings been adequately understood and addressed?
- *Facility/community cooperation*—Are local facilities doing enough to deliver appropriate services, assure their accessibility and quality, and control costs? Would the community be willing to accept the loss of certain services it could no longer support?
- *Maintaining access*—Can local facilities continue to meet their traditional obligations to the poor and underserved? If so, how? If not, who will?
- *Changing mission*—Should the hospital or other local health care facility shift some or all of its resources to other services or business activities?
- *Facility organization*—Should area facilities continue to operate independently or should they engage in cooperative arrangements with other providers? Is the community willing to relinquish any or all control over the delivery of local services?

Washington: Five Health Service Groups

The Washington Rural Health Care Commission, as part of a 1989 report to the State legislature that examined ways of maintaining and improving access to care for rural residents, identified five levels of basic health services to reflect the range of service resources that should be available in most rural areas. Basic services are divided into five priority groupings ("bands") that represent levels of patient immediacy or use and complexity of patient conditions and care (table 8-1). The five bands are:

2:7

Table 8-1—Basic Health Services for Rural Areas (Washington State)

Band 1--prevent death, disability, serious illness

- 24-hour emergency medical services (first responder/emergency medical technician)
  - Stabilization
  - Communications
  - Air to ground ambulance transport
- Essential public health services
  - Environmental services monitoring and response
  - Personal health services monitoring and response
- Primary care (e.g., provided by a physician or midlevel practitioner) including:
  - Routine health maintenance
  - Prevention
  - Care for acute conditions
  - Prenatal care
- Mental health
  - Crisis intervention

Band 2--necessary support services for band 1

- Diagnostic services
  - X-ray: extremities, chest; fluoroscopy; ultrasound
  - Laboratory: chemistries, urines, blood, bacteriology
  - Other services at same level of complexity and demand

Band 3--short-term inpatient and home health

- Home health services
  - Visiting nurse
  - Medical services
- Selected acute short-term hospital services
  - Acute conditions (e.g., pneumonia, gastroenteritis, and certain accidents)
  - Childbirth services (level 1)
- Selected acute alternative facility services[a]

Band 4--community-based care for chronic conditions

- Mental health services
  - Evaluation
  - Mental health consultation
  - Psychological therapy
- Long-term care services
  - Community-based care (e.g., chore services, home meals, adult day health)
  - Supervised living, boarding housing, respite care
  - Skilled and intermediate nursing facilities
- Substance abuse and chemical dependency
  - Counseling
  - Treatment referral

Band 5--other services

- Dental care
  - Routine examination, mechanical cleaning, fluoridation
- Vision and hearing care
- Hospice care
- Other treatment modalities

NOTE: The first band of services contains the most emergent services as well as those services of greatest use.

[a] Would be developed through changes in State licensure standards.

SOURCE: Washington Rural Health Care Commission, A Report to the Legislature on Rural Health Care in the State of Washington (Olympia, WA: January 1989).

1. those services most critical to survival or most often utilized (e.g., emergency and primary care services);
2. basic diagnostic support services;
3. an essential core of basic acute care and home health services;
4. community-based care for chronic conditions; and
5. services that help residents in larger populated rural areas stay within the community for care.

This model assumes that, for certain levels of care, providers must use referral arrangements and cooperative agreements to ensure continued access to needed services. Only larger rural communities could afford to provide services in all five bands.

When assigning services to the bands, the Commission applied certain criteria to determine the degree of urgency and appropriateness for the service. These included:

- the primacy of preventing death, disability, or serious injury;
- the need for immediate diagnosis or treatment to prevent illness or injury from becoming more serious and more costly or difficult to treat;
- the need for medical monitoring to prevent disability or injury;
- the need to prevent conditions from occurring that would threaten the health of the general population;
- the length of time a health condition can exist before treatment is needed; and
- the physical, psychological, emotional, financial, and time advantages to community and providers of having certain services locally available (*714*).

Utah: Basic Needs

The Utah Department of Health has outlined a list of minimum health services that should be available to small communities in sparsely populated or

Table 8-2—Recommended Health Services by Size of Community (Utah)

Population/ service area	Emergency medical services	Primary care	Specialty care	Hospitalization
Fewer than 500 persons	First responder EMT	Intermittent MLP or MD by appointment Satellite/part-time clinic: EMT supervision via telecommunication and written protocol	Referral	Referral
500-900 persons	EMT first responder network in outlying areas	Full-time MLP or part-time MD Arrangement for emergency coverage and EMT supervision	Referral or periodic arrangement in the community	Referral
900-1,500 persons	EMT first responder network	Full-time MD or MLP, or combination full and part-time group practice Emergency coverage and EMT supervision	Referral or periodic arrangement in the community	Referral and infirmary model
1,500-4,000+ persons	EMT first responder network	Small group practice: combination of MD and/or MLP; medical specialists (MD/MLP); IM, PED or OB, CNM as determined by community need; Emergency coverage and EMT supervision	On-site full-time regularly scheduled clinic within primary care practice Referral	Small community hospital or infirmary referral

ABBREVIATIONS: CNM = certified nurse midwife; EMT= emergency medical technician; IM = internist; MD = medical doctor; MLP = midlevel practitioner; OB = obstetrician; PED = pediatrician.

SOURCE: G. Elison, "Frontier Areas: Problems for Delivery of Health Care Services," Rural Health Care 1, September/October 1986 (newsletter of the National Rural Health Association, Kansas City, MO).

frontier areas (table 8-2). Its recommendations specify that emergency medical personnel would be the first responders in all small communities, with regular primary care by a midlevel practitioner or physician made available in communities of at least 500 persons. Specialty care in most small communities would be available only through out-of-area referral or through arrangements under which outside providers periodically conduct local clinics. In some cases, hospital care could be provided in communities of 1,500 to 4,000 or more persons (*183*).

CREATION OF ALTERNATIVELY LICENSED FACILITIES IN RURAL AREAS

Despite their conceptual importance, State attempts to define minimum service goals for rural health care have not directly affected rural areas. A few States have recently begun to intervene more directly in the structure of basic rural health services by experimenting with the development of new models of health care facilities that require changes in State licensure rules. Most of these alternative models focus on strengthening underutilized and financially unstable small, isolated rural hospitals. Implementation of these models (typically by "downsizing" existing hospital capacity and services) is intended to ensure access to basic acute and emergency care without burdening the facility with the requirements of a full-service hospital.

Efforts to develop alternative delivery models for rural hospitals have a relatively brief history. In the early 1970s, the U.S. Department of Health, Education and Welfare (DHEW)—now the Department of Health and Human Services (DHHS)—permitted about 150 hospitals to waive the Medicare requirement that a registered nurse supervisor must be at the hospital 24 hours a day. Most of these hospitals were in remote areas and served as sole local health care providers. In 1973, DHEW studied the feasibility of establishing a new category of "limited service" rural hospitals that would be small, isolated, and limit their services to the capabilities of the staff and facility. The study concluded that implementation of the classification would be difficult on a national scale, as some States might be unwilling or unable to make the licensure and other regulatory changes necessary to adapt to the new Medicare participation requirements (*352*).

Today, the opposite situation exists. Some States have been considering redefining rural facilities, but they have no assurance of any parallel change in Federal regulations. Many current State efforts to develop alternative facility models would require Federal permission to waive certain Medicare and Medicaid participation requirements in order to receive payment from these sources. Described below are activities underway in Montana, California, and Colorado, followed by brief mention of new licensure laws in Florida and Wyoming that have not been fully implemented.

Montana

In 1987, the Montana Legislature, with support from the Montana Hospital Association, created a new licensure category of health facility called a Medical Assistance Facility (MAF). An MAF, as defined by State law, is a health care institution that provides inpatient care to persons needing care for no longer than 96 hours, or to those requiring care prior to transportation to a hospital. Such a facility must be located either in a county with six or fewer persons per square mile (''frontier'' area) or more than 35 miles from the nearest hospital. At least one physician must staff the facility with assistance from one or more physician assistants or nurse practitioners, and the physician must be physically present in the MAF at least once every 30 days. Proposed administrative rules state that each MAF must provide a minimum set of nursing, pharmaceutical, laboratory, food, dietary, and emergency services. The MAF is also required to have a quality assurance program that includes routine review of patient utilization and the facility's health care policies. Under the above guidelines, 17 of the State's 56 hospitals would be eligible to become MAFs. In order to convert to MAF status, a facility must receive certificate-of-need (CON) approval, and it must surrender its hospital license with the option to reapply for it. (Other Montana hospitals are no longer subject to CON regulation (*377*).)

The new category of health facility was designed primarily to give underutilized small rural hospitals the option of reducing the scope of their operations to provide only low-intensity, short-stay acute care. Hospitals currently targeted for MAF status appear to be no longer viable as full-service acute-care facilities. (The majority have closed their acute-care units and provide mostly long-term care services (*377*)). Interviews with residents in counties of prospective MAFs found widespread support for the idea (*377,399*). However, as of June 1990, no hospitals had converted to MAFs, in part because of the uncertainty of obtaining the Federal waiver that would enable them to receive Medicare and Medicaid payments (*377*).

In 1988, the Montana Hospital Research and Education Foundation (MHREF) sought cooperation and support from the Health Care Financing Administration (HCFA) to further develop the MAF idea. HCFA initially awarded MHREF a 1-year planning grant and evaluative support to enhance the MAF design and refine ideas for its demonstration. However, HCFA made no assurances about whether it would eventually approve the waivers of Medicare conditions of participation that would make the new facilities eligible for payment. Under a demonstration project, as proposed by MHREF, three hospitals (two that already have closed acute-care units) would participate as MAFs, and six hospitals would serve as comparison sites (*377*).[1] To evaluate the potential success of MAFs, MHREF contracted with various parties to examine:

- licensure and certification standards for facilities and professionals, including eligibility for participation (e.g., whether providers other than rural hospitals should also be eligible);
- staffing requirements (what types of staff should be required on-site for what time schedule);
- beneficiary acceptance of the new service model;
- model acceptance by eligible facilities, and the financial implications of facilities becoming MAFs;
- service scope and use;
- quality of care concerns;

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[1] The six comparison sites may convert to MAF status during the time of the demonstration only if their closure is imminent.

- institutional liability issues; and
- possible Medicare and Medicaid reimbursement schemes and their impact on facility profitability (*377,524*).

In 1989, MHREF, as part of its request for 4-year funding of a full MAF demonstration, asked HCFA to waive: 1) Medicare's conditions of participation and requirements for prospective reimbursement, and 2) conflict of interest rules that would prohibit Peer Review Organizations (PROs) from helping MAFs to develop quality assurance programs.[2] In September 1989, HCFA approved continuation funding of the MAF project for 1 year (*377*). MHREF expected to receive approval of its waiver requests in mid-1990, allowing all MAFs to begin operating by fall of the year (*377*).

California

In 1988, the California Legislature passed a law (*117*) granting broad authority to the State Department of Health Services to study ways to facilitate the development of new delivery models for rural hospitals. The Department was given three charges. First, it was to undertake a comprehensive assessment of regulatory requirements applicable to small and rural hospitals (up to 76 acute-care beds and located in areas with 15,000 or fewer residents[3]). Second, it was to institute emergency regulations that waive or modify existing regulations found to be unreasonably burdensome or inapplicable to rural hospitals, including licensure requirements. And third, it was to conduct pilot projects in small and rural hospitals using alternative rural hospital standards and models.

In accordance with the law, the health department is creating a new model design that provides regulatory relief for rural hospitals and is based on local needs for an essential, core group of services. These core services include:

- standby emergency medical services, with 24-hour coverage by a physician or midlevel practitioner;
- basic patient holding and stabilization capacity offering short-term inpatient medical and nursing care for up to 96 hours, and patient transfer to a hospital if necessary;
- basic ambulatory care, limited to nonemergent diagnosis and treatment, minor surgeries requiring local anesthesia, and obstetric care for prenatal and postpartum conditions (these services may be provided through the emergency service component if they will replicate similar services already available in the area);
- basic lab and radiology services, including simple urinalyses, blood counts, and basic x-rays; and
- appropriate support systems such as dietary and pharmaceutical services, and protocols for quality assurance and utilization review.

Model hospitals choosing to provide only the core services would face the most lenient facility, staffing, and peer review requirements, and they would be expected to show the greatest savings in fixed costs. As an option, model facilities could supplement the required core services with additional, more specialized services to meet the specific needs of their communities. These might include expanded inpatient services (for acute care longer than 96 hours), expanded obstetric and radiology services, and selected inpatient and outpatient surgical services (*427*). The level of regulatory oversight would increase with the service scope of the facility.

Guidelines for eligibility currently being considered allow only certain rural acute-care hospitals to participate as new model facilities. Eligible hospitals would be small (e.g., have an average daily census of 10 or fewer acute-care patients) and typically would be the sole acute-care providers in their communities. They would maintain their licenses as hospitals and be encouraged to provide subacute skilled nursing care (with swing beds or a distinct-part skilled nursing facility). Hospitals also would have to have the support of their board and medical staff to participate as a demonstration site, and they would be required to develop a quality assurance plan (*427*).

In 1989, three hospitals were initially proposed by the California Department of Health for designation and demonstration as alternative model facilities. (An estimated 25 sites have been targeted.) Two of the three agreed to participate and reduce their services to a level comparable to the model's core and expanded service restrictions. Hypothetical financial analyses indicated that both hospitals would be fiscally solvent under the alternative model. Because the hospitals would not immediately be expected to make significant staffing changes (in order to limit local economic upheaval) or to make physical changes in the facility, the Department believed it would not be necessary for them to obtain waivers of Medicare's conditions of participation (*427*).

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[2] MHREF has requested that MAFs be paid initially on the basis of reasonable costs (*400*). Conflict of interest rules do not allow PROs to contract separately with hospitals to provide support (e.g., assistance with preadmission review) if they are already required to conduct peer review and monitor the facility's quality of care. MHREF has requested that PROs be allowed to enter into such contracts.

[3] Other conditions of eligibility also exist (*117*).

However, a Federal waiver would still be required if the 96-hour length-of-stay limit was applied. To resolve this situation, the Department decided to use a facility's admissions criteria (i.e., the type of patients seen as dictated by the facility's licensed mix of services) as a *de facto* measure of service intensity (*285*). Initial analyses suggested that use of the length-of-stay limitation may not have been necessary in most cases. For those targeted hospitals that already had "downsized" operations and were concentrating on providing essential services, about 85 percent of all patients were discharged within 96 hours (*427*).

In late 1989, the health department recommended that the State create a pilot project to test the alternative rural hospital model, providing regulatory relief and technical assistance to participating facilities (*427*). A final report, stating whether modified regulations and the alternative models should become permanent, is due to the State legislature in 1993 (*117*).

Colorado

In 1986, the State of Colorado developed a new licensure category for rural providers called Community Clinic/Emergency Centers (CCECs). CCECs are defined by regulation as health care institutions "planned, organized, operated and maintained to provide basic community facilities and services for the diagnosis and treatment of individuals requiring outpatient service and inpatient care, including inpatient accommodations for emergency care" (Code of Colorado regulations 6 CCR 1011.1). CCECs provide only emergency and outpatient services, but they must have a written affiliation with a nearby general hospital to coordinate patient referrals and other service needs. To ensure availability of inpatient accommodations for emergency care, the facilities must have no more than six beds to stabilize and hold patients for up to 72 hours. A physician is required to be available by telephone and to reside within 15 minutes travel time, and 24-hour skilled nursing coverage must be available on-site. Minimal laboratory and dietary services are also required. CCEC regulations waive many hospital facility standards, requiring facilities to operate much like small clinics and making them an attractive form of service provision for providers other than hospitals (*391,524*).

Much of the effort to promote provider interest and participation in the CCEC model appears to have been futile because of the lack of any involvement or support by HCFA. Thus far, the agency has shown no interest in certifying CCECs for Medicare and Medicaid participation and reimbursement, limiting the usefulness of this designation. As of 1989, only five CCECs had been certified, four of which were CHCs or nursing homes (which must rely on private insurance for reimbursement). No hospitals have become CCECs (*524*). Little information is available on the performance of CCECs, or on whether the State plans to make any changes to encourage greater involvement from rural facilities and the Federal Government.

Initiatives in Other States

Florida

Based on recommendations of a 1987 study of the problems facing rural hospitals in the State, the Florida Legislature in 1988 designated 27 small rural hospitals[4] to receive special consideration under State regulations (e.g., receipt of Medicaid reimbursement for swing-bed care, exemption from budget review by the State's Hospital Cost Containment Board) (*478*). In 1989, State lawmakers, intending to further help these hospitals, created an alternative licensure category for rural facilities called Emergency Care Hospitals (ECHs) (*195*). The ECH, modeled after Montana's MAFs, would provide emergency care and routine inpatient services for up to 96 hours under the care of a physician or midlevel practitioner. In addition, basic diagnostic services, primary and obstetric care, and various long-term care services (e.g., skilled nursing and home health) are authorized to be provided. Hospitals applying for ECH status will receive expedited review under Florida's CON process and may retain their hospital license. Regardless of whether they become ECHs, the 27 hospitals are also exempted from CON review of home health, hospice, and swing-bed services under the 1989 law. Plans to pursue Medicare waivers and implement the ECH legislation are being delayed until the State decides whether to apply for participation in the new Federal alternative rural hospital program discussed below.

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[4] Each of these hospitals (fewer than one-half of the State's rural hospital total) has 85 or fewer beds and an emergency room, and all are either the sole inpatient facilities in their counties or serve areas with no more than 100 persons per square mile.

Wyoming

In 1989, the Wyoming Legislature established new licensure and operation regulations for health care facilities (*741*). The law introduces the new licensure category of medical assistance facilities, modeled after Montana's MAFs, which would provide limited acute care to patients for a period of no more than 60 hours prior to their transfer to a hospital (if transfer is necessary). The medical assistance facilities must be located more than 30 miles from the nearest Wyoming hospital. As in Florida, regulations that would govern the specific operation of these facilities have not been established; the period for making these regulatory changes ends in 1993.

Comparison of State Efforts

Efforts by the above States to develop alternatively licensed facilities in rural areas have important similarities and differences.

To date, only Montana has obtained direct interest and support by HCFA that might lead to waivers of Federal conditions of participation, allowing the model facilities to receive Medicare and Medicaid reimbursement. However, as noted by differences between the Montana and California projects, there may be ways to minimize HCFA's role in such matters. The need for waivers will depend in part on the specific needs and objectives for developing new models and the extent of regulatory changes involved.

The amount of effort that has been invested by States in developing alternative facility models, as well as the specificity and flexibility of the laws defining and regulating them, varies considerably. Except for California, most States have chosen to establish alternative licensure laws before developing ideas for new delivery models.

Eligibility criteria vary for rural providers seeking to participate as alternative facilities (e.g., they may be restricted to hospitals or to facilities meeting only certain size and location criteria). For example, Montana's MAFs must be the only local inpatient care providers in remote areas. Four of the facilities operating as CCECs in Colorado are CHCs or nursing homes, and all are the sole providers in their communities.

States have different ideas on whether a hospital becoming an alternative facility should be allowed to keep its existing license to protect against the risk that its participation as a new facility is unsuccessful. Regulations in Montana require a hospital becoming a MAF to give up its acute-care license. In California, alternative model hospitals would retain their acute-care license. Hospitals in Florida that become ECHs but later decide to seek full acute-care relicensure would receive expedited review and reclassification.

Differences exist among States on the scope of services to be provided in alternatively licensed facilities, and the role rural providers and communities have in making these decisions. Most of the new models allow for use of both physicians and midlevel practitioners, and most proposals would require facilities to ensure appropriate transfer and referral of patients to other providers. Only minimal attention appears to have been given by most States (except Montana) to the effects of new models on quality of care and patient satisfaction.

Most models that provide for limited inpatient services in the form of holding and observation care units use a maximum time standard of 96 hours (Colorado and Wyoming use shorter periods). Existing data suggest that the average acute-care length of stay in a small rural hospital may already closely match these proposed limits.[5] The maximum length of stay is intended to act as a proxy for service intensity and severity of illness. However, some States (e.g., California) have suggested other measures (e.g., lists of approved admitting diagnoses or services, composition and skill mix of medical personnel) that might be more appropriate indicators of low-intensity care, while giving model facilities more flexibility to hold patients for different periods of time (*398,478*). Length-of-stay restrictions may be the most problematic in very remote areas where alternative sources of care are far away.

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[5] In 1985, the average length of stay for a rural hospital with fewer than 25 beds was 4.9 days, or about 118 hours (*236*).

Recent National Developments

In 1989, Congress required DHHS (Public Law 101-239) to establish a program to provide grants for up to seven States to designate and develop two new types of rural hospitals: Essential Access Community Hospitals (EACHs) and Rural Primary Care Hospitals (RPCHs). In addition, up to 15 RPCHs may be designated in States without EACH programs. EACHs and RPCHs are to form a network of rural health facilities designed to ensure the regional accessibility and continuity of emergency, primary, acute, and long-term care services. Eligible hospitals must be located in States that have or are developing a plan calling for the creation of rural health care networks.

To be designated as an EACH facility, a rural hospital must be more than 35 miles from another designated EACH or rural referral center, and it must have at least 75 beds or be located more than 35 miles from any other hospital.[6] EACHs will provide emergency and medical backup services to designated RPCHs in the network; they must agree to accept patients transferred from rural physicians and RPCHs, receive and transmit data to RPCHs, and provide staff privileges to RPCH physicians. EACHs will be considered "sole community hospitals" for the purpose of Medicare reimbursement.

RPCHs are smaller facilities that will be required to provide 24-hour emergency care; to cease offering inpatient care except through using a maximum of 6 holding beds to stabilize patients for up to 72 hours; and to have patient transfer arrangements with the nearest hospital(s). Rural hospitals becoming RPCHs will be allowed to provide skilled nursing services, and they may use midlevel practitioners with physician oversight. These facilities will not have to meet existing hospital requirements for 24-hour operation (except emergency care), and the services of dieticians, pharmacists, and certain laboratory and radiology technicians need only be available on a part-time, off-site basis. Inpatient acute-care services will initially be reimbursed by Medicare at cost. For outpatient services, RPCHs will at first have the option of receiving either a cost-based facility fee (which does not include physician charges) or a comprehensive cost-based rate (combining facility and professional services). A prospective payment system must be developed by 1993 for both inpatient and outpatient RPCH services.

States will be responsible for designating and supporting the development of EACH networks. When designating RPCHs, States that have EACHs must give preference to hospitals participating in rural health networks. Grants for up to 3 years from the Rural Health Care Transition Grants Program (see ch. 3) and the Medicare trust fund will be available to help States and hospitals to plan and implement the EACH/RPCH designations and rural health networks.

The EACH program poses a dilemma for States that are developing their own alternative models for rural facilities. On the one hand, the State-developed models can be adapted to the needs of those States. For example, States may wish to:

- establish their own minimum mileage limits between designated facilities;
- establish their own limits on the number of acute-care beds and the allowed levels of service intensity in model facilities; and
- consider criteria for essential access facilities other than distance and facility size (e.g., community income or poverty levels).

On the other hand, States may also find the Federal program attractive because it enables RPCHs to receive Medicare payment—a valuable incentive for hospitals to shift their emphasis from acute care to emergency and primary care (*87*).

STATE-PROMOTED INTEGRATION OF SERVICES

Rather than (or in addition to) adopting a more sweeping approach, some States have focused their support (e.g., technical assistance, regulatory relief) on a few targeted facilities to improve the integration and accessibility of local health services in specific rural communities. Below are three examples of such initiatives.

North Carolina—The Roanoke Amaranth Community Health Group, a private, nonprofit primary care practice in rural North Carolina, was established in 1976 with technical assistance from the State and funding from the U.S. Public Health Service. The State recently supported research that found that the area's elderly were using post-acute care resources in distant places near where they had been hospitalized, forcing many to relocate in order to obtain needed rehabilitation and support services. To address the need for accessible and comprehensive long-term care, the Roanoke Group decided to sponsor the development of a long-term care campus adjacent to the practice.

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[6] These requirements may be waived by the Secretary of DHHS.

Development of the long-term care complex began with construction of a 60-bed nursing home and an 18-bed board-and-care facility, which opened in early 1990. Other facilities that have begun operations are a senior center (supported by a State grant) and 20 elderly housing units subsidized by a loan from the U.S. Department of Housing and Urban Development (HUD). Additional plans call for opening 30 market-rate rental units and an outpatient rehabilitation clinic.

The State has helped the Roanoke Group overcome several regulatory obstacles during the course of the project. Technical assistance from the State helped Roanoke receive a CON to build the nursing home and gain loan approval from HUD to develop the subsidized rental apartments. Efforts by Roanoke to secure a Farmers Home Administration (FmHA) loan to build the 30 market-rate apartments have been delayed, however, because of FmHA claims that no comparable market rate exists from which to make lending decisions. The State is also providing assistance to help the proposed outpatient clinic become certified as a provider-based rural health clinic (see ch. 3), enhancing the facility's Medicare and Medicaid reimbursement (*418,479*).

California—The Mono (County) General Hospital, a 29-bed public facility in rural northern California, had been suffering annual operating deficits of over $300,000 since 1984. After an unsuccessful attempt to have the hospital managed by a multihospital system based 2 hours away, the county considered closing the facility. In response to concerns that closure would severely limit access to basic health services for area highway travelers, the State in 1986 appropriated funds to maintain hospital operations for 1 year.

A study of the facility recommended a plan to convert 10 of the 29 beds from acute care to skilled nursing care and improve outpatient services. The plan would allow the county to operate the facility on a "breakeven" basis (in which revenues would at least equal expenses). Despite pressure from the county's other hospital, the county eventually agreed to accept the State's restructuring plan. To assist the restructuring process, the State altered California regulations (i.e., approved use of a joint nursing station for the acute-care and skilled-nursing units, and hospital-based skilled nursing beds for Medicaid patients). Provisions were made also to cross-train and certify staff lab and x-ray technicians to reduce standby costs (*418*).

Florida—The North Central Florida Health Planning Council, a State-funded district health planning agency covering 16 rural counties, assisted in the recent expansion of State-supported primary care services to indigent populations. The Council realized that the increased delivery of such services by area county health departments was insufficient to meet many indigent patients' needs for followup care. The Council worked with local health departments participating in the State program to establish a referral network of specialists and hospitals, and to set up a centralized Medicaid billing system to be used by participating physicians (*222*).

LOCAL TAX INITIATIVES

In order to maintain health services, local governments in many rural areas have increased their tax support for public hospitals and other facilities (see ch. 5). (In Montana, for example, nearly 60 percent of the nonoperating revenue of the State's small rural hospitals in 1985 came from tax funds of local counties and hospital districts[7] (*73*).) Rural communities in States with enabling laws can create tax support through the establishment of health care districts. In addition, some rural facilities may seek local approval of special, temporary tax levies to alleviate immediate financial problems. Two examples of local tax initiatives are described below.

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[7] Hospital districts are one type of special district that exist to support a single public function or purpose. Special districts are independent governmental units that have, among other things, the autonomous power to tax. The idea of special districts is not new; by 1982 there were 28,000 nationwide, mainly serving local requirements for schools, water, fire protection, health care, or other needed services (*441*). Most special districts are located in rural areas (63 percent in 1977); often they are the only means by which small communities can obtain a critically needed public service (*137*).

VOTE AGAINST
HOSPITAL TAX
FEB 20

Photo credit: Peter Beeson

Rural communities do not always agree on the best solution for their ailing hospitals. In Giddings, Texas, a recent referendum was passed, despite considerable local opposition, that created a tax district to fund the county hospital.

Washington—About 75 percent of Washington's rural hospitals are part of public hospital districts (*714*). Some of the State's rural hospitals have sought local tax support both through the establishment of hospital districts and the creation of special tax levies.

Whitman Community Hospital, a county-funded facility, had been losing money for several years, and in 1986 it requested the county to create a special tax district to support the facility. The county's commissioners turned down the request, because property tax rates were already at their limit mandated by the State, and a new hospital district would reduce amounts for existing special districts (e.g., fire protection, libraries). A 1987 State law, however, allowed local voters to increase their property tax rates, fueling again the hospital's interest to propose the new tax district. In 1988, to ease concerns from existing districts, the hospital decided to propose a new district under which it would agree only to seek special, temporary tax levies. These levies would not be affected by State limits on current property taxes or require existing districts to share tax monies. In September 1989, following a major campaign, voters approved the formation of the hospital district and a special 1-year tax levy. Levies for the hospital, to be collected about 8 months following the election, were estimated to be $100,000 (*379*).

Oregon—In 1980, the rural community of Condon, Oregon, having been without a physician for 2 years, sought assistance from the State Office of Rural Health to establish a health service district for south Gilliam County. The State granted Condon $20,000 to develop primary care services and assist the county in the formation of the health service district. After a brief campaign, voters approved the creation of the district and a property tax rate expected to yield 50 percent of the budget of a new primary care clinic in the first year. Future tax subsidies were lowered as the clinic began showing a profit (*441*).

SUMMARY OF FINDINGS

Federal, State, and local governments have undertaken some extraordinary efforts to enable rural facilities and communities to preserve or enhance basic services. At least two States have developed conceptual frameworks for determining an appropriate or minimal set of services and providers for rural communities, although thus far these efforts have found little practical application. Several rural communities have enacted new mechanisms for improving local tax support for area health facilities and services. Some States are offering targeted financial support or regulatory relief to a handful of rural facilities for improving the local integration of services.

Increasing numbers of States, however, are taking a broader approach: the development of alternative licensure and delivery models for rural facilities—No collaborative effort between government and rural facility has been more dramatic than activities by a few States to change regulations and design new models intended to alter and improve the delivery of health services in rural areas. These efforts reflect differences (and similarities) among States in the need for structured change in rural facilities.

Montana and California have the most developed models thus far. Montana's new MAF licensure category alters regulations to allow small, underused acute-care hospitals to become providers of low-intensity, short-stay acute care. Federal support has helped develop ideas for demonstrating MAFs.

Waivers of Federal conditions of participation for the new facilities are now necessary in order for MAFs to receive Medicare payments and begin effective operations as part of a demonstration project; however, the Federal Government had not yet approved the State's waiver requests as of June 1990. California is designing a new delivery model that would allow rural hospitals, through proposed changes in State licensure standards, to operate and provide services under conditions more appropriate to local needs and capabilities. These conditions permit underutilized rural hospitals that provide only a core group of basic services to function under more lenient State regulations and with lower fixed costs. At present, the State does not consider waivers of Federal conditions of participation to be necessary for the rural hospitals initially targeted to participate in a demonstration project.

National legislation passed in late 1989 created a program in up to seven States to develop EACHs and RPCHs. Up to 15 RPCHs may be developed in States without EACHs. Eligible EACHs and RPCHs will be designated by participating States and are intended to operate as part of a rural health network, reducing excess capacity of acute-care beds and ensuring regional accessibility of services. As of June 1990, regulations had yet to be developed and many questions remain about the program's benefits and feasibility.

Chapter 9

Conclusions: Availability of Rural Health Services

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Chapter 9

Conclusions: Availability of Rural Health Services

VIABILITY OF FACILITIES AND SERVICES

Rural health care facilities face ominous changes in their operating environment. ***Major declines in the number of inpatients have made it difficult for many rural hospitals to function under stable circumstances.*** Inpatient volume and occupancy levels often are insufficient to support the basic fixed costs of treatment, especially for the smallest facilities. But the strategies that such facilities might use to lower these fixed expenses are limited. Some basic services and staff must be maintained to address unexpected variations in utilization and meet Federal and State regulations. Small isolated hospitals serving sparse populations lack the economies of scale gained from providing high-volume services, and they are often unable to share resources with other facilities to help lower their fixed costs.

Growing numbers of rural residents appear to be leaving their communities to obtain hospital care in urban areas, either to receive specialized care unavailable locally or because they choose not to use local services. The migrating patients tend to be those who are best able to pay for care, leaving local hospitals more dependent on the lesser paying patients and further weakening the hospitals' financial condition. The results of this trend for rural hospitals are significant increases in the proportion of care that is uncompensated and a heavy dependence on inflexible public payers (e.g., Medicaid and Medicare) that have not kept payments at pace with rising costs. Such revenue constraints have further pressured these facilities to reduce inpatient costs and to rely more heavily on local tax subsidies and fundraising. However, efforts to lower costs and improve revenues have had only limited success. Positive operating margins are now minimal or nonexistent for most rural hospitals.

The costs to rural hospitals of uncompensated care are probably much greater for uninsured and Medicaid patients than for Medicare patients. Enhancements to inpatient Medicare payments may help in the short-term to increase coverage of acute care costs and subsidize some nonacute care services in smaller hospitals. Over the long term, however, increased inpatient Medicare payments will do little to counter the general decline in demand for acute care, stimulate involvement in other ventures and services, and improve total hospital operating margins.

Community health centers (CHCs), a primary source of nonurgent care for rural poor and uninsured residents, are providing ever greater amounts of under- and uncompensated service and remain heavily dependent on government grants and payers (e.g., Medicaid). Small and isolated CHCs, which are less able than others to cut expenses or collect additional patient revenues, are especially dependent on Federal grants for their survival. As with hospitals, costs are rising faster than total revenues in rural CHCs.

FACILITY ADAPTATION TO CHANGES

Many rural health facilities have inadequately developed new service missions and structures in response to these health system changes, in part because they face several obstacles to doing so.

Information on strategies is lacking. Although numerous short- and long-term strategies exist that might enable rural health facilities to adapt to changes, evidence of their existence and effectiveness is limited and comes largely from anecdotal sources. Few mechanisms exist through which information on prospects and efforts might be disseminated to rural facilities or to government policymakers who might wish to support such efforts on a larger scale.

The means for accomplishing change can be extraordinary and quite risky. Strategies by a few States to develop alternative delivery models for rural hospitals typically require major restructuring of facility services and operations. Most such models address the faltering condition of small, underutilized hospitals by limiting their scope of services to essential levels of emergency, subacute, and primary care. Patients needing other services would be stabilized and transferred under these models.

Adopting such measures is risky for both facilities and their communities. There are few precedents, and there are no assurances of support from government or other sources. For example, hospitals in Montana that agreed to become medical assistance facilities would: 1) serve remote rural communities with limited access to care, 2) have to surrender their acute-care license, and 3) need a waiver of Federal regulations in order to receive Medicare and Medicaid payments.

One barrier that must be overcome for these alternative facilities to become viable are inflexible regulations that affect scope of services, staffing, facility specifications, and other factors. Existing laws and reimbursement policies now prevent many facilities from redesigning their structures and services to fit local needs and capabilities. The new Federal initiative creating essential access community hospitals (EACHs) and rural primary care hospitals (RPCHs) is designed to provide an alternative to some of these regulatory limits on hospitals. Some States, however, may find EACHs/RPCHs less appropriate than State-designed models that are more attuned to local needs.

Other barriers that may influence the development of alternative facilities include:

- *indefinite support from Federal and State governments* for planning and technical assistance, improved access to capital, and other forms of financial assistance;
- *opposition by health care professionals* concerned about quality of care and protecting traditional roles and authority; and
- *questionable acceptance and support from the community*, which may believe that inferior quality care will be provided.

Effective change is stifled by facility financial problems and shortsighted government policies. For example, the increase in outpatient and post-acute care services in most rural hospitals has brought these facilities a new source of cost-based revenue. However, these new revenue sources are endangered by:

- increased efforts of hospitals to have these services absorb losses accruing from inpatient care;
- current plans by Medicare to pay for ambulatory surgery and other outpatient services on a prospective basis, which could potentially disadvantage many rural hospitals; and
- regulatory requirements associated with providing hospital-based post-acute and long-term care (e.g., the requirement that a skilled nursing facility have its own nursing station).

Hospitals operating at a loss develop poor credit ratings, forcing lenders to deny these hospitals capital to invest in new equipment and facilities for diversified services. Some providers applying for certification as rural health clinics have difficulty complying with certain regulations (e.g., midlevel staffing). Others experience lengthy waits prior to approval of participation, delaying their receipt of Medicare and Medicaid payments.

Parochialism, inertia, or lack of planning resources may prevent some facilities from effectively exploring prospects for change. Anecdotal reports suggest that some rural hospital executives have been slow to accept and address rapid changes in their financial condition, market, and regulatory environment. Trustees and management often are mindful of community pride in past accomplishments and desires to maintain the status quo and are oriented more to service delivery than business management. In certain cases, this situation may be exacerbated by the lack of dynamic leadership and access to specialized management and legal counsel.

It appears that rural facilities are either skeptical of the benefits of interinstitutional affiliations or simply lack the opportunity to participate. Less than 15 percent of rural hospitals have joined cooperatives, and the number in multihospital systems appears to be declining.

To help rural facilities overcome their problems and implement strategies to adapt to changes, Federal and State governments can intervene in two broad areas:

- ***assessing Federal and State regulations and removing those that prevent useful approaches to change***, and
- ***providing incentives to States and local communities to help restructure facilities and services.***

Changes in regulation, however, must assure patient safety and quality of care. Assessing the impact of new facility models and other strategies on the quality of care should be an explicit component of evaluation efforts.

AVAILABILITY OF SERVICES

Most rural hospitals are within reasonable travel time or distance to another hospital. However, rural hospitals located in more rugged terrain and in less densely populated regions of the Western United States are farther apart. Not much is known about the characteristics and accessibility of hospitals nearest these facilities. Hospitals in isolated areas are often the only providers of accessible emergency and acute care for widely dispersed populations—yet this role may be impeded by a lack of physicians and patients. For example, frontier hospitals have significantly fewer staff physicians and acute-care admissions than do other similarly sized rural facilities.

Some financially troubled rural hospitals can no longer survive as hospitals, due mainly to declining inpatient volume and rising costs of maintaining underused acute-care capacity. The excessive supply of hospital beds in many rural areas has been created by a combination of the prolific hospital construction of the Hill-Burton era, health system changes producing more outpatient care, and greater use of sophisticated technology that cannot be provided economically in small hospitals.

Those rural hospitals that have closed are relatively near other hospitals, small in size, and few in proportion to the number of open hospitals. The effects of hospital closures are felt most keenly where the hospitals are the only providers of acute care over large areas. But apparently, few closed hospitals thus far have significantly affected access to care for local residents. Little is known about the comparability of open hospitals nearest these closed facilities in terms of scope and quality of services, geographic and financial accessibility, or operational stability.

There are no well-defined criteria or designations for rural health facilities that: 1) are essential sources of emergency, primary, and acute-care services for residents geographically isolated or unable to pay; and 2) may need special protection to maintain the provision of essential services. The Medicare sole community hospital (SCH) designation was intended to serve this purpose, but as a group, SCHs no longer represent critical sources of hospital care in rural areas. In fact, only about 30 percent of Medicare-designated SCHs meet current eligibility criteria. Furthermore, under past payment rules many SCHs were in poor financial condition, and the value of SCH designation has been questionable to most rural hospitals until recently. Changes in SCH reimbursement (Public Law 101-239) may improve the financial solvency of many SCHs, but smaller SCHs (like many small rural hospitals in general) will probably remain financially vulnerable despite higher Medicare payments. ***Classification of sole community hospitals in geographically isolated rural areas should more accurately designate and protect critically needed facilities.*** Also, beyond Medicare's prospective payment system, new sole community provider criteria might: 1) give special attention to hospitals in rural areas that have a large proportion of low-income or uninsured residents, and 2) be expanded to include nonhospital providers (e.g., primary care centers, long-term care facilities).

Travel time to services is an important potential criterion for determining when a provider is an essential sole source of local care. But determining an acceptable standard of travel time or distance to health care for residents in remote areas is difficult and controversial. ***Travel guidelines being debated for application to hospital care in rural areas are overly simplified (e.g., apply to all rural areas and all levels of treatment).***[1] Most recent studies examining travel distances have not considered important access issues such as the urgency of the care required, the mobility of the patient, and the variability among facilities in the scope and quality of services and policies for care to indigent patients.

COORDINATION AND INTEGRATION OF SERVICES

Health services have developed in response to myriad factors (including various government policies, programs, and reimbursement mechanisms). Consequently, many services might appear fragmented and uncoordinated, particularly for the poor and elderly individuals commonly thought to have the greatest difficulty in gaining access to health services. ***Hospitals in rural communities generally have developed and operated independently of other hospitals and area health services. Their lack***

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[1] For example, the 1978 National Guidelines for Health Planning (now repealed) suggested that travel time to a hospital for a majority of residents of rural areas should be no greater than 30 minutes (43 FR 3056).

of coordination between services can have serious consequences. For example, some rural county health departments in Florida providing primary care to the indigent have until recently lacked the funds and planning assistance to arrange necessary followup care with area hospitals and specialists (*322*).

In other situations, one may find:

- *Rural facilities delivering duplicative or underutilized services*—For example, some transportation services to primary care clinics are available from various local agencies; however, there may be little coordination or information on how to obtain these services. Consequently, some residents may forego important care or be prematurely institutionalized because they are unaware of vital services.
- *Rural facilities endangering continuity of care when referring patients to distant providers*—For rural hospitals and physicians not engaged in cooperative transfer and referral arrangements with distant providers, ensuring appropriate and coordinated care for referred patients is difficult. Also, because of the lack of locally available care, some rural elderly persons must be referred to distant communities for both hospitalization and post-acute support services. Thus, some residents relocate and fragment the relationship with their local primary provider.
- *Rural hospitals having difficulty discharging patients effectively*—Nearly all rural (and urban) hospitals have difficulty finding appropriate post-acute care for discharged patients (*613*). This is a problem in rural communities where no skilled nursing facility beds or full-service home health agencies are conveniently available.

The lack of effectively coordinated and integrated health services in many rural communities underscores the need for creating new or better delivery networks of various providers. Current efforts to improve rural health service delivery have given scant attention to the development of facility networks. Examples include:

- *New delivery models in areas with limited access*—In general, State efforts to create rural alternative delivery models have only involved individual hospitals. No States have considered developing networks of different types of facilities that improve access to and continuity within a more comprehensive set of services. The recent Federal initiative that allows the creation of EACHs and RPCHs addresses the importance of rural health care networks; however, it is not clear to what extent nonhospital facilities and providers will be encouraged to have a role in the networks (e.g., only hospitals are now eligible to become RPCHs). Also, few State models address problems of rural areas with large proportions of low-income or uninsured persons.
- *The Federal Rural Health Care Transition Grants Program* (see ch. 3) is laudable in its intent to encourage rural hospitals to adapt to changes and promote cooperative activity among facilities. However, the program lacks the resources to offer hospitals incentives that are appropriate and adequate for major structural change and long-term solutions. The program would also be more effective if grant funds were better prioritized and targeted (e.g., to facilities and networks in areas with critical access problems).

Many rural facilities are either unaccustomed to cooperative delivery networks or may be less inclined to participate in networks because of possible government restrictions (e.g., antitrust, antikickback, and tax-exemption rules). ***An appropriate Federal role would be to provide guidelines and incentives for States and local facilities to plan and demonstrate networks.*** Networks developed in areas with critical access problems may need special treatment to ensure their existence.

Part IV

Availability of Rural Health Personnel

Chapter 10

The Supply of Health Personnel in Rural Areas

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Chapter 10

The Supply of Health Personnel in Rural Areas

INTRODUCTION

The health care services in rural areas[1] depend on the presence and skills of the professionals who provide them.

The rural supply of health professionals is dependent on both the size of the national pool of professionals and the distribution of that pool between urban and rural areas. Reduction in the size of the national pool of health professionals may have a greater impact on rural than on urban areas. Conversely, increases in the national pool may not be reflected uniformly across all areas.

This chapter describes the supply of physicians,[2] midlevel practitioners,[3] nurses, and selected other health professionals nationwide and in rural areas.[4] Although there are no uniformly accepted standards of adequacy against which to compare these supply figures, this chapter presents trends over time and contrasts availability across urban and rural areas to lend some insight into relative adequacy.

PHYSICIANS[5]

National Supply

Over the last two decades, physician supply relative to the U.S. population has greatly increased. From 1963 to 1988, the total number of physicians (MDs only) in the United States more than doubled (table 10-1), while the U.S. population increased by only 31 percent (*39,671*).[6] The total physician-to-

Table 10-1—Supply of Physicians (MDs) in the United States, Selected Years, 1963-88[a]

	Aggregate supply						Percent change,
	1963	1973	1978	1983	1985	1988	1963-88
Total physicians[b]........	276,475[c]	366,379	437,486	519,546	552,716	585,597	111.8
Physicians per 100,000 population[c].....	146	174	196	218	228	237	62.3
Total U.S. population (in thousands)..........	189,242	210,908	223,400	238,189	242,946	247,508[d]	30.8

[a]Data for 1988 as of Jan. 1. Data prior to 1988 as of Dec. 31.

[b]Includes MDs in patient care, research, administration, and teaching; MDs in Federal service; and inactive MDs. Includes 1,335 physicians, addresses unknown, who are not distributed according to sources of medical education.

[c]1987 population estimates were used to calculate 1988 MD ratios. Prior to 1988, population estimates used were for the same year as MD data.

[d]1987 population estimate.

SOURCES: U.S. Department of Health and Human Services, Health Resources and Services Administration, Sixth Report to the President & Congress on the Status of Health Personnel in the United States, DHHS Pub. No. HRS-P-OD-88-1 (Rockville, MD: HRSA, June 1988), table 3-1; American Medical Association, unpublished data, provided by staff at the U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Rockville, MD, 1990.

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[1] Unless otherwise indicated, "rural areas" in this chapter refers to nonmetropolitan counties, and "urban areas" refers to metropolitan counties.

[2] Allopathic physicians (MDs) and osteopathic physicians (DOs).

[3] Nurse practitioners, physician assistants, certified nurse-midwives, and certified registered nurse anesthetists.

[4] This study did not examine the supply of podiatrists or chiropractors in rural areas.

[5] Some of the data presented in this report do not include osteopathic (DO) physicians due to the limited integration of data on MDs and DOs. This may lead to an underestimation of physician-to-population ratios, particularly in some rural areas where DOs are a large proportion of the total physician population.

[6] In 1988, the American Medical Association changed its annual reporting date for physician data from Dec. 31 to Jan. 1 of the reporting year. For this reason, tables in this report showing AMA trend data through 1988 reflect changes over a period that is one year shorter—e.g., 1980-88 represents a 7- rather than an 8-year period. Where 1988 MD-to-population ratios are shown, 1987 rather than 1988 population estimates are used.

Box 10-A—Provider Profile: Physicians

Both allopathic (MD) and osteopathic (DO) physicians undergo 4 years of undergraduate medical training (*671*). In 1989 there were 126 colleges of allopathic medicine and 15 colleges of osteopathic medicine in the United States (*673*). Allopathic schools teach traditional medicine, while osteopathic schools take a more holistic approach and emphasize the importance of the musculoskeletal system in the overall health of an individual (*148*). The curricula in allopathic and osteopathic schools, however, have become more similar over the years, and the quality of osteopathic physicians has been increasingly recognized by Federal and other groups (*148*).

After graduating, allopathic and osteopathic physicians can begin general practice or enter a residency program in their chosen specialty. Residency programs last from 3 to 7 years, depending on the specialty *(673)*. Graduates of osteopathic schools can enter either allopathic or osteopathic residency programs, although the vast majority spend their first postgraduate year in an osteopathic internship as required by the American Osteopathic Association (*673*).

On completion of residency training, physicians can take a certification examination in their medical specialty. Compared with approximately one-fourth of osteopathic physicians, most allopathic physicians today are board-certified specialists (*671*).

population ratio[7] increased by 62 percent over this period, and it is projected to continue to increase further through the year 2020 (table 10-2) (*673*).[8] [9] This growth was largely due to Federal and State efforts in the 1960s and early 1970s to combat a perceived physician shortage (*129*).

In the early 1980s, Federal efforts leveled off after the Graduate Medical Education National Advisory Committee (GMENAC) predicted an oversupply of physicians by the year 1990 (*654*). Since the GMENAC report, supply forecasting methodology and results have been extensively debated and revised. Table 10-3 compares three alternative sets of projections for the years 1990 and 2000. Recently, the Council on Graduate Medical Education (COGME) reviewed and critiqued various projections and concluded that, in the aggregate, there is now or soon will be an oversupply of physicians in the United States, but that the extent of the oversupply is impossible to quantify at present (*672*). It also concluded that the supply of primary care physicians is in jeopardy, and that expansions in training programs will be needed to prevent future shortages (*672*).

Despite considerable growth in aggregate physician supply, there were still 1,944 designated primary care Health Manpower Shortage Areas (HMSAs) in 1988, with a resident population of almost 34 million (see table 11-5). An estimated 4,104 primary care physicians would have been required to remove these designations. Twenty-nine percent of all rural residents lived in primary care HMSAs in 1988, compared with 9.2 percent of urban residents (see table 11-5).[10]

National figures obscure considerable State and regional variations in physician supply. In 1988, when the national ratio was 229 non-Federal[11] MDs per 100,000 residents, ratios in the States ranged from a low of 135 in Mississippi to a high of 349 in Maryland (table 10-4) (*39*). Not all of these physicians provided patient care; the number of MDs in direct patient care per 100,000 residents ranged from 115 in Idaho to 270 in Massachusetts (table 10-4) (*39*).

Table 10-5 shows projections of the number of active MDs per 100,000 residents in each State, geographic region, and division for 1990 and 2000. In 1986, when the national ratio was 216 per 100,000, the East South Central division had the

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[7] MDs only.

[8] Projections in table 10-2 include MDs and DOs.

[9] All tables in this chapter that present Bureau of Health Professions supply projections reflect the median or ''basic series'' projections, which assume that recent trends in enrollments and graduations will continue. For a more detailed description of BHPr's forecasting methodology, see the *Sixth Report to the President and Congress on the Status of Health Personnel in the United States (671)*.

[10] See ch. 11 for a detailed discussion of Federal HMSA designations.

[11] ''Non-Federal physicians'' excludes all physicians salaried directly by the Federal Government (i.e., physicians in the military or in the Public Health Service). It includes National Health Service Corps physicians who are not salaried by the Federal Government. Although the supply of Federal physicians is important, it makes sense to exclude them from the overall count when looking at availability of physicians to the civilian population. Although at one time most National Health Service Corps physicians were Federal employees, most today are not.

Table 10-2—Supply of Professionally Active Physicians (MDs and DOs) in the United States: Estimated 1986 and Projected 1990, 2000, and 2020

	Estimated[a]		Projected					
	1986		1990		2000		2020	
			Number of active physicians					
All active[a]	544,830	(100%)	601,060	(100%)	721,600	(100%)	848,620	(100%)
MDs	522,020	(95.8%)	573,310	(95.4%)	682,120	(94.5%)	789,560	(93.0%)
DOs[b]	22,810	(4.2%)	27,750	(4.6%)	39,480	(5.5%)	59,060	(7.0%)
			Number per 100,000 residents					
All active[a]	224.9		240.0		269.0		288.3	
MDs	215.5		228.9		259.3		268.2	
DOs[b]	9.4		11.1		14.7		20.1	

[a] Professionally active MDs include MDs in patient care, research, administration, and teaching. MDs professionally active in 1986 include approximately 90 percent of the physicians who are not classified according to activity status by the American Medical Association and whose addresses are unknown.

[b] Doctors of Osteopathy.

SOURCE: U.S. Department of Health And Human Services, Health Resources and Services Administration, Bureau of Health Professions, Seventh Report to the President and Congress on The Status of Health Personnel in The United States, DHHS Pub. No. HRS-P-OD-90-1 (Rockville, MD: HRSA, June 1990), table VI-A-12.

Table 10-3—Estimates of Physician Supply, Requirements, and Surplus, 1990 and 2000[a]

Data source	1990			2000		
	Supply	Requirements	Surplus	Supply	Requirements	Surplus
BHPr[b]	597,040	570,500	26,540	708,600	637,000	71,600
Original GMENAC[c]	535,750	466,000	69,750	642,950	498,250	144,700
Revised GMENAC[d]	535,750	473,000	62,750	642,950	505,750	137,200
AMA[e]	592,000	NA	NA	693,000	NA	NA

NOTE: NA = not available.

[a] Includes osteopathic physicians.

[b] The Bureau of Health Professions (BHPr) model assumes that residents = 1.00 full-time equivalent (FTE).

[c] The Graduate Medical Education National Advisory Committee (GMENAC) model assumes that residents = .35 FTE.

[d] This model also assumed that residents = .35 FTE.

[e] The American Medical Association (AMA) model assumes that residents = 1.00 FTE.

SOURCES: U.S. Department of Health & Human Services, Health Resources and Services Administration, Bureau of Health Professions, Division of Medicine, Council on Graduate Medical Education: First Report of the Council, vol. II (Rockville, MD: July 1, 1988); Weiner, J.P., "Forecasting Physician Supply: Recent Developments," Health Affairs vol. 8, No. 4, pp. 173-179, winter 1989, Exhibit 1. Based on data from: W.D. Marder, P.R. Kletke, A.B. Silberger, et al., Physician Supply and Utilization by Specialty: Trends and Projections (Chicago, IL: American Medical Association, 1988); M.A. Bowman, J.M. Katzoff, Garrison, L.P., et al., "Estimates of Physician Requirements for 1990 for the Specialties of Neurology, Anesthesiology, Nuclear Medicine, Pathology, Physical Medicine and Rehabilitation, and Radiology," Journal of the American Medical Association vol. 250, No. 19, pp. 2623-2627, November 1983; U.S. Department of Health & Human Services, Health Resources Administration, Office of Graduate Medical Education, Report of the Graduate Medical Education National Advisory Committee (GMENAC) to the Secretary of the Department of Health and Human Services, vol. I: Summary Report, DHHS Pub. No. (HRA) 81-651 (Washington, DC: U.S. Government Printing Office, April 1981); U.S. Department of Health & Human Services, Health Resources and Services Administration, Bureau of Health Professions, Sixth Report to the President & Congress on the Status of Health Personnel in the United States, DHHS Pub. No. HRS-P-OD-88-1 (Rockville, MD: HRSA, June 1988).

Table 10-4—Supply of Non-Federal[a] MDs by State, 1980, 1985, and 1988[b]

State	1980		1985		1988		Percent change in rate, 1980-1988	Non-Federal patient care MDs per 100,000 civilian residents, 1988
	Total non-Federal MDs	Rate per 100,000 civilian residents[c]	Total non-Federal MDs	Rate per 100,000 civilian residents[c]	Total non-Federal MDs	Rate per 100,000 civilian residents[c]		
Alabama	5,039	130	6,090	152	6,580	162	24.6	140
Alaska	509	134	680	137	729	145	8.2	127
Arizona	5,535	205	6,942	220	7,632	227	10.7	178
Arkansas	2,939	128	3,532	150	3,746	157	22.7	135
California	58,368	248	69,208	266	73,832	269	8.5	217
Colorado	5,999	210	6,879	216	7,214	221	5.2	182
Connecticut	8,177	264	9,544	302	10,153	317	20.1	257
Delaware	1,001	169	1,252	203	1,348	210	24.3	177
District of Columbia	3,626	576	3,755	607	3,869	629	9.2	475
Florida	20,374	208	26,566	236	29,087	244	17.3	187
Georgia	8,060	149	10,142	172	10,986	178	19.5	154
Hawaii	2,020	222	2,388	239	2,593	253	14.0	207
Idaho	1,089	116	1,331	133	1,358	136	17.2	115
Illinois	21,740	191	24,903	217	25,971	224	17.3	189
Indiana	7,415	135	8,542	156	9,029	163	20.7	140
Iowa	3,847	132	4,305	149	4,474	157	18.9	131
Kansas	3,893	166	4,350	179	4,575	186	12.0	157
Kentucky	5,059	139	5,982	162	6,388	172	23.7	150
Louisiana	6,752	161	8,312	187	8,602	194	20.5	168
Maine	1,865	169	2,232	193	2,367	201	18.9	160
Maryland	11,745	281	14,491	334	15,643	349	24.2	267
Massachusetts	16,342	285	19,242	331	20,224	346	21.4	270
Michigan	15,347	166	17,206	190	17,972	195	17.5	164
Minnesota	8,150	200	9,326	223	9,849	232	16.0	193
Mississippi	2,797	112	3,279	126	3,522	135	20.5	119
Missouri	8,331	170	9,750	195	10,290	202	18.8	171
Montana	1,100	140	1,276	155	1,359	168	20.0	144
Nebraska	2,442	157	2,707	170	2,839	179	14.0	155
Nevada	1,171	147	1,604	173	1,726	173	17.7	147
New Hampshire	1,655	180	2,060	207	2,241	213	18.3	172
New Jersey	14,799	201	18,313	243	19,410	253	25.9	211
New Mexico	2,143	166	2,630	184	2,869	193	16.3	155
New York	49,105	280	56,392	318	58,916	331	18.2	269
North Carolina	9,354	162	11,347	185	12,330	195	20.4	161
North Dakota	919	143	1,130	168	1,184	179	25.2	158
Ohio	18,342	170	21,319	199	22,212	206	21.2	175
Oklahoma	4,031	134	4,866	149	5,055	156	16.4	134
Oregon	5,119	194	5,764	215	6,049	222	14.4	181
Pennsylvania	23,347	197	27,727	234	29,331	246	24.9	204
Rhode Island	2,102	223	2,385	248	2,602	265	18.8	218
South Carolina	4,362	143	5,303	161	5,736	170	18.9	145
South Dakota	809	118	1,003	143	1,066	151	28.0	130
Tennessee	7,460	163	8,982	189	9,634	199	22.1	173
Texas	22,571	159	28,254	174	30,052	180	13.2	153
Utah	2,492	170	3,025	185	3,207	191	12.4	161
Vermont	1,185	231	1,436	268	1,512	275	19.0	215
Virginia	9,682	186	11,875	214	12,744	222	19.4	186
						233	20.7	185

Table 10-4—Supply of Non-Federal[a] MDs by State, 1980, 1985, and 1988[b]—Continued

State	1980		1985		1988		Percent change in rate, 1980-1988	Non-Federal patient care MDs per 100,000 civilian residents, 1988
	Total non-Federal MDs	Rate per 100,000 civilian residents[c]	Total non-Federal MDs	Rate per 100,000 civilian residents[c]	Total non-Federal MDs	Rate per 100,000 civilian residents[c]		
West Virginia	2,745	141	3,319	171	3,396	179	27.0	152
Wisconsin	7,859	166	8,969	188	9,491	197	18.7	167
Wyoming	567	120	707	140	719	147	22.5	126
Total[d]	439,301	195	522,315	220	554,155	229	17.4	189

[a] "Federal" and "non-Federal" status are self-reported. Physicians are asked to list their status as "Federal" if they are military, Public Health Service, Veterans Administration, or other.

[b] MD data for 1988 as of Jan. 1. Prior MD data as of Dec. 31.

[c] 1987 population estimates were used to calculate 1988 MD ratios. Prior to 1988, population estimates used were for the same year as MD data.

[d] Excludes physicians and residents in the U.S. possessions.

SOURCE: American Medical Association, unpublished data, provided by staff at the U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Rockville, MD, 1990.

Table 10-5—Number of Professionally Active MDs Per 100,000 Residents by Region and State: Estimated 1986 and Projected 1990 and 2000

	MDs per 100,000 residents[a]			Percent change	
	1986	1990	2000	1986-1990	1986-2000
United States[b]	216.4	223.4	247.8	6.2	17.6
Northeast	270.2	303.0	372.7	11.8	37.7
New England	283.3	314.2	387.2	10.6	36.4
Connecticut	294.1	327.0	402.1	10.9	36.7
Maine	165.6	176.5	207.7	6.0	25.4
Massachusetts	330.7	378.4	496.2	14.2	49.9
New Hampshire	175.6	174.5	172.3	-0.5	-1.6
Rhode Island	236.1	259.7	317.0	9.7	33.9
Vermont	254.5	269.2	305.4	5.5	19.6
Middle Atlantic	265.7	299.0	367.1	12.4	38.0
New Jersey	223.4	244.4	282.5	9.4	26.4
New York	308.1	354.9	444.8	14.9	44.1
Pennsylvania	229.4	255.6	319.4	11.3	39.2
Midwest	194.5	207.3	243.2	6.2	24.7
East North Central	195.8	208.1	244.4	6.1	24.5
Illinois	225.5	245.5	295.5	8.9	31.0
Indiana	152.1	159.2	184.2	4.6	21.0
Michigan	188.4	195.7	224.4	3.7	19.1
Ohio	195.6	210.4	253.6	7.2	29.7
Wisconsin	188.8	195.8	217.2	3.7	14.8
West North Central	191.4	205.4	240.4	7.3	25.6
Iowa	156.4	160.6	186.0	2.6	18.5
Kansas	188.3	202.4	234.6	7.4	24.4
Minnesota	232.5	251.1	298.6	7.7	28.4
Missouri	193.7	211.2	249.3	8.8	28.4
Nebraska	179.0	189.2	210.2	5.6	17.3
North Dakota	162.7	172.3	193.7	5.5	19.1
South Dakota	138.3	149.2	171.5	7.2	23.9
South	182.7	184.9	194.5	4.0	9.6
South Atlantic	206.0	198.0	206.8	4.2	9.0
Delaware	181.4	201.0	232.7	10.5	28.1
District of Columbia	731.3	998.8	587.8	36.5	117.1
Florida	181.0	173.4	153.0	-3.8	-15.4
Georgia	163.7	177.3	191.8	7.9	17.1
Maryland	358.7	396.0	465.0	10.3	29.6
North Carolina	174.4	187.6	208.9	7.5	19.5
South Carolina	148.2	150.9	154.3	1.3	4.0
Virginia	210.2	227.6	257.7	8.1	22.4
West Virginia	169.3	173.5	201.1	2.4	18.3
East South Central	161.2	167.5	186.6	3.7	15.5
Alabama	147.5	154.6	170.7	4.7	15.6
Kentucky	166.5	170.8	192.5	2.4	15.6
Mississippi	132.3	138.3	154.0	4.5	15.9
Tennessee	184.6	191.4	212.4	3.3	14.6
West South Central	165.3	173.1	178.6	4.2	7.9
Arkansas	146.8	149.3	158.6	1.4	7.5
Louisiana	176.7	183.4	196.1	3.4	10.8
Oklahoma	149.0	158.1	178.3	6.0	19.5
Texas	168.2	176.9	177.1	4.8	4.8
West	228.1	235.6	245.3	3.1	7.5
Mountain	188.2	180.2	171.2	-4.2	-8.9
Arizona	187.3	173.7	149.7	-6.8	-19.7
Colorado	230.7	227.7	224.5	-1.2	-2.5
Idaho	134.1	127.0	132.5	-5.1	-0.6
Montana	161.3	163.0	182.8	0.6	13.0
Nevada	158.5	141.1	119.9	-10.6	-23.9
New Mexico	186.5	208.4	243.0	11.3	30.0
Utah	185.6	170.1	156.6	-8.0	-15.5
Wyoming	141.2	115.6	104.9	-17.6	-25.4

Table 10-5—Number of Professionally Active MDs Per 100,000 Residents by Region and State: Estimated 1986 and Projected 1990 and 2000—Continued

	MDs per 100,000 residents[a]			Percent change	
	1986	1990	2000	1986-1990	1986-2000
Pacific	242.7	258.4	280.5	6.2	15.2
Alaska	160.5	203.0	244.6	26.2	12.3
California	250.9	273.8	300.5	8.8	19.5
Hawaii	239.9	250.8	270.0	4.2	12.5
Oregon	222.3	204.1	209.3	-8.0	-5.7
Washington	215.7	217.1	231.0	0.5	7.0
U.S. possessions	185.2	216.8	275.3	16.7	48.6

[a] Includes MDs in patient care, research, administration, and teaching, and MDs in Federal service. 1986 figures include approximately 90 percent of those MDs not classified according to activity status by the American Medical Association.

[b] Includes MDs in the U.S. possessions.

SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Seventh Report to the President and Congress on the Status of Health Personnel in the United States, DHHS Pub. No. HRS-P-OD-90-1, (Rockville MD: HRSA, June 1990), table VI-A-16.

Table 10-6—Enrollments and Graduates of Allopathic (MD) and Osteopathic (DO) Medical Schools: 1981-82, 1986-87, and Projected 1991-92

				Percent change	
	1981-82	1986-87	1991-92	1981-82 to 1986-87	1986-87 to 1991-92
MD					
First-year enrollments	17,871	17,156	16,677	-4.0	-2.8
Graduates	15,985	15,836	16,169	0.9	2.1
DO					
First-year enrollments	1,582	1,724	1,692	9.0	-1.9
Graduates	1,017	1,587	1,512	6.0	-4.7
Total					
First-year enrollments	19,453	18,880	18,369	-2.9	-2.7
Graduates	17,002	17,481	17,681	2.8	1.1

NOTE: For allopathic and osteopathic schools, first-year enrollments are actual for 1981-82 and 1986-87 and are projected for 1991-92; graduates are actual for 1981-82 and 1986-87 and are projected for 1991-92. MD first-year enrollments include students transferring from 2-year schools, other degree programs, and foreign medical schools. DO first-year enrollments and graduates for 1986-87 are preliminary estimates.

SOURCE: U.S. Department of Health & Human Services, Health Resources and Services Administration, Bureau of Health Professions, Seventh Report to the President & Congress on the Status of Health Personnel in the United States, DHHS Pub. No. HRS-P-OD-90-1 (Rockville, MD: HRSA, June 1990), table VI-A-11.

lowest ratio (161) and New England had the highest (283) (*673*).[12] Although most States may expect an increase in coming years, substantial decreases are projected for some (e.g., Colorado, Nevada, and Wyoming) (*673*).

Doctors of osteopathy (DOs) represent a small but increasing proportion of total active physicians in the United States (table 10-2) (*673*). Their growth in importance is expected to continue into the next century, even though enrollments in both osteopathic and allopathic schools are projected to decrease (table 10-6) (*673*). The number of osteopathic medical schools increased from 5 in 1968 to 15 in 1989 (*148*).[13] As of September 1, 1989, there were 27,627 active DOs in the United States (*711*).

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[12] See app. F for a list of States included in each census region and division.

[13] The increase in the number of osteopathic medical schools in recent years, and the consequent increase in numbers of graduates, has not been matched by an increase in the number of osteopathic residency training programs. As a result, approximately one-half of osteopathic graduates seeking residency training are now entering allopathic residency training programs (*148*).

Distribution by Specialty: Primary *v.* Nonprimary Care

Growth in physician supply has been accompanied by a trend towards more specialized practice. The period 1970 to 1988 saw a 68 percent increase in the total number of professionally active MDs, but the number of MDs in general/family practice increased by only 20 percent during this time (table 10-7) (*39,671*). Specialties experiencing the greatest increases in absolute number during this period included radiology,[14] plastic surgery, gastroenterology, neurology, pulmonary and cardiovascular specialties, and anesthesiology (*39,671*).

This trend towards specialization has widened the gap between supplies of primary and nonprimary care physicians.[15] Between 1981 and 1988, MD-to-population ratios increased more quickly for nonprimary care specialists than for primary care physicians (table 10-8) (*39,672*). Furthermore, ratios for family/general practitioners showed the smallest increase (8 percent) of the three primary care specialties for which information is available (table 10-8). The slower rates of increase for primary care MDs in general, and for family and general practitioners in particular, are projected to continue through the year 2020 (table 10-9) (*673*). The AMA predicts that, unlike the supply of other physicians, the supply of general and family practitioners and general surgeons will not keep pace with growth in the demand for their services (table 10-10) (*369*).

A recent study examined data from the 1983 and 1987 Association of American Medical Colleges Graduation Questionnaire to determine trends in evolution of specialty choice among allopathic medical school seniors. During this period, the number of seniors indicating a choice for any primary care specialty decreased, with the most dramatic decrease occurring in general internal medicine (*65*). Specialties showing the greatest increases among male seniors included the pediatric and internal medicine subspecialties, rehabilitation medicine, and public health (*65*).

Primary care physicians are almost twice as likely as nonprimary care physicians to practice in rural areas. In 1988, 15.9 percent of all professionally active primary care physicians (MDs and DOs) were in rural areas, compared with 8.0 percent of active nonprimary care physicians (MDs only) (*686*).[16] The trend towards nonprimary care will thus have a disproportionately negative effect on rural areas.

The proportion of primary care MDs who are office-based has declined as more of these physicians enter research, administration, teaching, and hospital-based positions (*68*). Rural areas have suffered more than urban areas from this trend. From 1963 to 1986, the ratio of office-based primary care MDs to area residents increased by 2 percent in urban areas but decreased by 8 percent in rural areas (*68*).

Trends in the Supply of General and Family Practitioners

The "classic" primary care physician is the family practitioner (FP). This specialty was first recognized in 1969 with the establishment of the American Board of Family Practice (*11*). The predecessors of board-certified FPs were general practitioners (GPs), who received no specialty training and typically went into practice after 1 year of graduate internship. GPs still make a significant contribution to the primary care work force, but their numbers have been decreasing. In 1963 there were over 73,000 GPs in the United States. By 1986, there were only slightly more than 25,000 GPs, and most (60 percent) were over the age of 55 (*11,68*). In 1940, approximately 75 percent of physicians in patient care were GPs (*37*). By 1970, general and family practitioners (combined) represented only 19 per-

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[14] Includes diagnostic radiology, therapeutic radiology, radiation oncology, and nuclear medicine.

[15] There is some debate over which specialties should be included as "primary care specialties." While all internists and pediatricians were once considered primary care specialists, increasing subspecialization in both fields has led researchers and policymakers to exclude subspecialists from the definition of "primary care." Some definitions of primary care physicians include obstetrics/gynecology and general surgery, since these specialists often provide substantial amounts of primary care, especially when there is a lack of other primary care providers. The Bureau of Health Professions and the Bureau of Health Care Delivery and Assistance currently include family/general practice, general internal medicine, general pediatrics, and obstetrics/gynecology in their definition of primary care physicians for purposes of shortage area designation (see ch. 11). The definition of primary care specialties used in this report varies depending on the source of information.

[16] Primary care here includes MDs in general/family practice, general internal medicine, general pediatrics, and obstetrics/gynecology, and all DOs in patient care.

Table 10-7—Supply of Active MDs in the United States by Specialty, 1970, 1980, and 1988[a] [b]

	Active MDs						
	1970		1980		1988		
	Number	Rate per 100,000 residents[c]	Number	Rate per 100,000 residents[c]	Number	Rate per 100,000 residents[c]	Percent change in in number, 1970-1988
Estimated active[d]	314,196	150.0	440,357	190.4	536,185	216.6	70.7
Professionally active[e]	310,845	149.4	414,916	179.4	521,328	210.6	67.7
General and family practice	57,948	27.8	60,049	26.0	69,339	28.0	19.7
Medical Specialties	77,214	37.1	125,755	54.4	170,502	68.9	120.8
Allergy	1,719	0.8	1,518	0.7	1,471	0.6	-14.4
Cardiovascular disease	6,476	3.1	9,823	4.2	15,132	6.1	133.7
Dermatology	4,003	1.9	5,660	2.4	7,041	2.8	75.9
Gastroenterology	2,010	1.0	4,046	1.7	6,868	2.8	241.7
Internal medicine	41,872	20.1	71,531	30.9	94,674	38.3	126.1
Pediatrics allergy	391	0.2	461	0.2	378	0.2	-3.3
Pediatric cardiology	487	0.2	659	0.3	931	0.4	91.2
Pediatrics	17,941	8.6	28,342	12.3	38,231	15.4	113.1
Pulmonary diseases	2,315	1.1	3,715	1.6	5,776	2.3	149.5
Surgical specialties	86,042	41.3	110,778	47.9	132,409	53.5	53.9
General surgery	29,761	14.3	34,034	14.7	37,792	15.3	27.0
Neurological surgery	2,578	1.2	3,341	1.4	4,217	1.7	63.6
Obstetrics and gynecology	18,876	9.1	26,305	11.4	32,278	13.0	71.0
Ophthalmology	9,927	4.8	12,974	5.6	15,581	6.3	57.0
Orthopedic surgery	9,620	4.6	13,996	6.1	18,234	7.4	89.5
Otolarynology	5,409	2.6	6,553	2.8	7,182	3.2	44.4
Plastic surgery	1,600	0.8	2,980	1.3	4,356	1.8	172.3
Colon and rectal surgery	667	0.3	719	0.3	860	0.3	28.9
Thoracic surgery	1,809	0.9	2,133	0.9	2,124	0.9	17.4
Urology	5,795	2.8	7,743	3.3	9,155	3.7	58.0
Other specialties	89,641	43.1	118,334	51.2	149,078	60.2	66.3
Aerospace medicine	1,188	0.6	587	0.3	685	0.3	-42.3
Anesthesiology	10,860	5.2	15,958	6.9	24,258	9.8	123.4
Child psychiatry	2,090	1.0	3,271	1.4	4,107	1.7	96.5
Neurology	3,074	1.5	5,685	2.5	8,663	3.5	181.8
Occupational medicine	2,713	1.3	2,358	1.0	2,701	1.1	-0.4
Pathology[f]	10,483	5.0	13,642	5.9	16,594	6.7	58.3

(continued on next page)

Table 10-7—Supply of Active MDs in the United States by Specialty, 1970, 1980, and 1988[a] [b]—Continued

	Active MDs						
	1970		1980		1988		
	Number	Rate per 100,000 residents[c]	Number	Rate per 100,000 residents[c]	Number	Rate per 100,000 residents[c]	Percent change in in number, 1970-1988
Physical medicine and rehabilitation	1,479	0.7	2,146	0.9	3,729	1.5	152.1
Psychiatry	21,146	10.2	27,481	11.9	33,679	13.6	59.3
Public health[g]	3,833	1.8	3,126	1.4	3,050	1.2	-20.4
Radiology[h]	3,360	6.4	20,282	8.8	26,833	10.8	698.6
Other and unspecified[i]	19,415	9.3	23,798	10.3	24,779	10.0	27.6

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[a] Includes Federal MDs and MDs in U.S. possessions. Data for 1988 are as of Jan. 1. Data for 1970 and 1980 are as of Dec. 31.

[b] In its publication of 1981 data, the American Medical Association (AMA) began differentiating additional subspecialists in internal medicine, pediatrics and surgery. Separate estimates were made available for internal medicine subspecialties of allergy and immunology, diabetes, endocrinology, geriatrics, hematology, immunology, infectious diseases, nephrology, nutrition, oncology and rheumatology. Separate estimates in pediatrics were provided for the subspecialties of adolescent medicine, neonatal-perinatal medicine, peiatric endocrinology, pediatric hematology/oncology, and pediatric nephrology. Separate estimates for surgical subspecialties were made available for abdominal surgery, cardiovascular surgery, hand surgery, head and neck surgery, pediatric surgery and traumatic surgery. In this table, these subspecialties were formerly included in AMA published data under internal medicine, pediatrics and general surgery. When excluded from these categories, the total number of general internists, general pediatricians, and general surgeons presented for 1988 decrease to 72,038, 34,669, and 32,339, respectively.

[c] Ratios are based on total population plus civilian population in U.S. possessions. 1987 population estimates were used to calculate 1988 MD ratios.

[d] Adjusted to include MDs whose addresses were unknown or who were not classified according to specialty.

[e] Excludes MDs who were inactive, not classified according to specialty, or whose addresses were unknown.

[f] Includes forensic pathology.

[g] Includes general preventive medicine.

[h] Includes diagnostic and therapeutic radiology, radiation oncology, and nuclear medicine.

[i] Includes emergency medicine.

SOURCES: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Sixth Report to the President & Congress on the Status of Health Personnel in the United States, DHHS Pub. No. HRS-P-OD-88-1 (Rockville, MD: HRSA, June 1988), table 3-3; American Medical Association, unpublished data, provided by staff at the U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Rockville, MD, in 1990.

Table 10-8—Professionally Active MDs in Primary Care: Rate Per 100,000 Residents and Distribution by Specialty, 1981 and 1988[a]

	1981	1988	Percent change 1981 to 1988
Rate per 100,000 residents:[b]			
All active[c]	184.5	210.6	14.1%
Primary care	63.7	71.1	11.6
Family/general practice	26.0	28.0	7.7
General internal medicine	25.8	29.1	12.8
General pediatrics	12.0	14.0	16.7
Nonprimary care	120.8	139.5	15.5
Percent Distribution			
All active[c]	100.0	100.0	
Primary care	34.5	33.8	
Family/general practice	14.1	13.3	
General internal medicine	14.0	13.8	
General pediatrics	6.5	6.7	
Nonprimary care	65.5	66.2	

[a] Data for 1988 are as of Jan. 1. Data for 1986 are as of Dec. 31.

[b] 1987 population estimates were used to calculate 1988 MD ratios. Prior to 1988, population estimates used were for the same year as MD data.

[c] Includes MDs in patient care, research, administration, and teaching. Excludes inactive, not classified, and address unknown categories.

SOURCE: U.S. Department of Health & Human Services, Health Resources and Services Administration, Bureau of Health Professions, Division of Medicine, Council on Graduate Medical Education: First Report of the Council, vol. 2 (Rockville, MD: July 1, 1988), table 6; American Medical Association, unpublished data, provided by staff at the U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Rockville, MD, 1990.

cent of all professionally active physicians; by 1988, they represented only 13.3 percent (*39*).

The continuing attrition of GPs, and the fact that there has not been a significant increase in recent years in the number of FPs, raises concern about the adequacy of the future supply of these key primary care providers. One indicator of declining interest in family practice is the 1988 decrease in the percent of available first-year family practice residency positions in the National Residency Match Program that had been filled. The "fill rate," which had consistently been greater than 80 percent, fell to 73 percent in 1988 (*94*). Similar declines were seen in the fill rates for other primary care fields, including general internal medicine and pediatrics (*94*).

Urban areas compete heavily with rural areas for FPs. A recent survey of hospitals (both rural and urban) in five geographic regions showed that FPs are in the greatest demand (*514*). The American Academy of Family Physicians (AAFP) anticipates that the continued growth of managed care systems such as health maintenance organizations (HMOs)—which are disproportionately located in urban areas—will result in a strong demand for FPs (*11*). Such systems seek FPs and other primary care providers because they offer a broad range of services, can act as "gatekeepers" and thereby control referrals to more expensive specialists, and are generally seen as efficient utilizers of resources. At present, of the 94 percent of FPs in patient care, an estimated 23 percent were employed by HMOs, 12 percent were in independent practice associations, and 15 percent were in preferred provider organizations (*11*).

In contrast to the United States, Canada has resisted the trend towards specialized medical practice. Although it has 19 percent fewer MDs per capita than does the United States, Canada, in 1985, had a general/family practitioner-to-population ratio of 89 compared with the U.S. ratio of 28 (table 10-11) (*129*). Approximately 50 percent of all practicing physicians in Canada are in general or family practice (*3a*), compared with 13 percent of physicians[17] in the United States (table 10-8) (*39*).

Other Characteristics of the MD Population

Female physicians are an increasing proportion of all physicians. Between 1980 and 2000, the percentage of physicians who are female is projected to more than double, from 11 percent to 23 percent (figure 10-1) (*671*). The implications of this trend for health personnel policy may be significant, since studies have shown that women physicians see fewer patients and work fewer hours than their male counterparts (*95,308,481*). Female physicians are more likely than their male counterparts to choose salaried positions (*378*) and are less likely to practice in rural areas (*184*).

The proportion of MDs who are graduates of foreign medical schools (FMGs) nearly doubled

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[17] MDs only.

Table 10-9—Number of Professionally Active MDs in Primary Care and Nonprimary Care: Estimated 1986 and Projected 2000 and 2020[a]

Specialty	1986	2000	2020	Percent change 1986-2020
Primary care	182,110	223,920	262,010	43.9
General/family practice	71,320	82,780	97,520	36.7
General internal medicine	76,260	94,280	111,130	45.7
General pediatrics	34,530	46,860	53,360	54.5
Primary care with obstetrics/gynecology	215,540	268,040	314,530	45.9
Other medical specialties	60,700	99,170	115,820	90.8
Surgical specialties	134,440	165,550	182,770	35.9
Other specialties	144,530	193,240	228,710	58.2
Total[b]	521,780	681,890	789,300	51.3%

NOTE: Figures may not add to totals due to rounding.

[a] Includes MDs in patient care, research, administration, and teaching, and MDs in Federal service. 1986 figures include approximately 90 percent of the physicians who are not classified according to activity status by the American Medical Association and whose addresses are unknown.

[b] Figures may not add to totals due to rounding.

SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Seventh Report to the President & Congress on the Status of Health Personnel in the United States, DHHS Pub. No. HRS-P-OD-90-1 (Rockville, MD: HRSA, June 1990), table VI-A-14.

Table 10-10—American Medical Association (AMA) Projected Changes in Physician Supply and Utilization by Specialty, 1985-2000

	Percent growth, 1985-2000		Difference between growth in utilization and supply[b]
	Supply[a]	Utilization[a]	
All MDs[c]	23.8%	14.5%	9.3%
General/family practice	9.9	13.0	-3.1
Internal medicine	36.6	24.0	12.6
General internal medicine	27.0	24.6	2.4
Medical subspecialties	51.8	23.4	28.4
All surgical specialties	13.1	17.0	-3.9
General surgery	0.5	16.5	-16.0
Surgical subspecialties	19.9	17.1	2.8
Pediatrics	38.8	7.0	31.8
Obstetrics/gynecology	24.3	2.8	21.5
Psychiatry	14.0	19.4	-5.4
Emergency medicine	69.4	6.2	63.2

[a] Supply growth estimates based on the projected number of active physicians. Utilization growth estimates based on the number of of physician contacts (excluding telephone contacts) as reported in the National Health Interview Survey and the National Medical Care Utilization and Expenditure Survey.

[b] This represents the percent growth in utilization (column 2) subtracted from the the percent growth in supply (column 1).

[c] The AMA predicts a 61.0 percent increase in the supply of osteopathic physicians (DOs) between 1986 and 2000. In 1986, DOs represented 4.2 percent of all physicians--the proportion is expected to increase to 5.5 percent by the year 2000 (table 10-2).

SOURCE: W.D. Marder, P.R. Kletke, A.B. Silberger, et al., Physician Supply and Utilization by Specialty: Trends and Projections (Chicago, IL: American Medical Association, 1988), table 8-2.

Table 10-11—Comparison of Canadian and American Physician Supply for Selected Specialties, 1985

	Canada		United States	
	Active civilian physicians, Dec. 31, 1985	Physicians per 100,000 residents	Active Federal and non-Federal physicians Dec. 31, 1985	Physicians per 100,000 residents
Primary care (including subspecialties)	28,538	111	220,036	92
Primary care with obstetrics/gynecology	30,007	117	250,903	104
General/family practice	22,789	89	67,051	28
Internal medicine and subspecialties[a]	4,141	16	116,146	48
Pediatrics and subspecialties[b]	1,608	6	36,839	15
Obstetrics/gynecology	1,469	6	30,867	13
Nonprimary care	15,692	61	291,054	121
Total	44,230	173	511,090	213

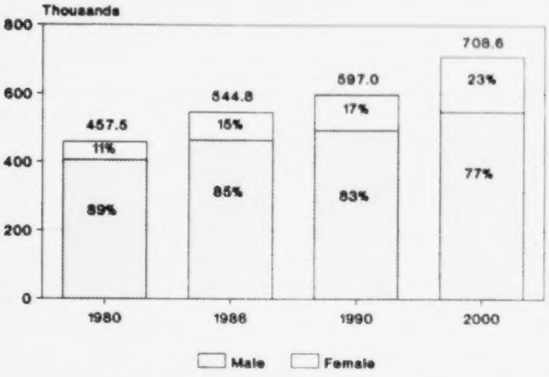
NOTE: As of Jan. 1, 1986, the Canadian population was 25,625,000, and the U.S. population was 240,468,000. Canadian and American population data are from the Bureau of the Census World Population Profile, 1986.

[a] Canadian data for the category "internal medicine and subspecialties" are directly from their category of the same name. American data for this category are the sum of the American Medical Association's (AMA's) category for internal medicine, allergy, cardiovascular disease, gastroenterology, and pulmonary disease.

[b] Canadian data for the category "pediatrics and subspecialties" are from their category "pediatrics." American data for this category are the sum of the AMA's categories for pediatrics, pediatric allergy, and pediatric cardiology.

SOURCE: Adapted from F.L. Clare, E. Spratley, P. Schwab, et al., "Trends in Health Personnel," Health Affairs vol. 6, No. 4, winter 1987, pp. 90-103.

Figure 10-1—Supply of Physicians (MD and DO) by Sex: Estimated 1980 and 1986, Projected 1990 and 2000[a]



[a] Includes all professionally active physicians. Estimates of MDs adjusted to include approximately 90 percent of physicians who are not classified according to activity status by the American Medical Association and whose addresses are unknown.

SOURCE: Office of Technology Assessment, 1990. Data from U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, *Sixth Report to the President and Congress on the Status of Health Personnel in the United States*, DHHS Pub. No. HRS-P-OD-88-1 (Rockville, MD: HRSA, June 1988), table 3-45.

between 1963 and 1983, increasing from 13 to 23 percent of all U.S. physicians, but it has since declined slightly (to 21.7 percent in 1988) (*39,671*). This proportion may decrease further if Federal policies restricting the number of FMGs allowed to practice in the United States are implemented (*388*).

Table 10-12 shows changes in the distribution of MDs across various professional activities over the past two decades. Fluctuations from year to year in the proportion of MDs who were not classified according to activity status or whose addresses were unknown prevent determination of any consistent trends. Nevertheless, a slow but steady increase in the proportion of MDs who are in research, a recent decrease in the proportion who are in office-based patient care, and an increase in the proportion who are inactive (i.e., retired) can be detected (*39,671*).

Doctors of Osteopathy

DOs are considerably more likely than are MDs to be primary care physicians. Of board-certified DOs

Table 10-12—Distribution of MDs by Major Professional Activity, Selected Years, 1970-88[a] [b]

Activity	1970	1975	1980	1983	1985	1988
	Percent distribution					
Patient care	83.4	79.2	80.5	81.5	81.2	81.7
Office-based	57.6	54.7	58.2	59.7	59.7	57.8
Hospital-based	25.8	24.5	22.3	21.8	21.5	23.9
Residents	15.3	14.7	13.3	14.1	13.6	15.4
Staff	10.4	9.8	9.1	7.7	7.8	8.4
Nonpatient care	9.7	7.2	8.2	8.4	8.7	7.3
Medical teaching	1.7	1.6	1.7	1.5	1.4	1.4
Administration	3.6	2.8	2.6	2.7	2.5	2.5
Research	3.6	2.0	3.3	3.6	4.2	2.8
Other	0.8	0.7	0.6	0.6	0.6	0.6
Not classified or address unknown	1.1	8.1	5.8	3.0	3.0	2.8
Inactive	5.9	5.4	5.5	7.1	7.0	8.2
Total[c]	100.0	100.0	100.0	100.0	100.0	100.0

[a] Data for 1988 are as of Jan. 1. Prior data are as of Dec. 31.

[b] Includes MDs in Federal service.

[c] Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Sixth Report to the President and Congress on the Status of Health Personnel in The United States, DHHS Pub. No. HRS-P-OD-88-1 (Rockville, MD: HRSA, June 1988), table 3-5; American Medical Association, unpublished data, provided by staff at the U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Rockville, MD, 1990.

in 1986,[18] 39 percent were in general practice,[19] and an additional 21 percent were in internal medicine, obstetrics/gynecology, or pediatrics (table 10-13) (*671*). However, the percentage of DOs in general practice decreased slightly from 1982 to 1986, from 41 to 39 percent (*671*), raising the question of whether osteopathic graduates are following allopaths' trends in preferring specialized to general practice.[20] The distribution of DOs by State is rather uneven, with the highest concentrations in States where osteopathic schools are located (table 10-14) (e.g., Michigan, Pennsylvania, and Ohio) (*671*).

Rural Supply

Prevalence of Rural Physicians

The number of professionally active physicians (MDs and DOs) per 100,000 residents was more than twice as high in urban as in rural areas in 1988 (table 10-15)[21] (*686*). For primary care physicians, urban-rural differences are less dramatic but still pronounced (table 10-15). Within rural counties,[22] physician-to-population ratios are related to county

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[18] Only 27 percent of all DOs are board-certified specialists (*711*).

[19] The American Osteopathic Association does not recognize the term "family practice." In the osteopathic physician community, "general practice" describes physicians who have completed a residency in general practice or whose practice is of a general rather than a specialized nature (*711*).

[20] For purposes of data analysis, the Federal Bureau of Health Professions regards all DOs wo provide patient care as primary care physicians, regardless of board certification and specialty (*570*).

[21] In table 10-15 and other subsequent tables, physician distribution and supply are shown by county size and classification. In 1987, the total U.S. population (as estimated for the purposes of the Area Resource File database) was 243,398,300. Distribution of that population was as follows: metro—188,261,600 (77%); nonmetro—55,136,700 (23%); nonmetro counties with 50,000 or more residents—18,937,200 (7.7%); nonmetro counties with 25,000-49,999 residents—17,930,700 (7.3%); nonmetro counties with 10,000-24,999 residents—14,294,900 (5.8%); nonmetro counties with 5,000-9,999 residents—3,132,500 (1.3%); nonmetro counties with 2,500-4,999 residents—681,400 (0.3%); nonmetro counties with fewer than 2,500 residents—160,000 (<0.5%). Within nonmetro counties of fewer than 10,000 residents, the total population in counties with 6 or fewer persons per square mile was 1,308,000 (0.5% of the total U.S. population), and the total population of all other counties was 2,695,600 (1.1% of the total U.S. population) (*686*).

[22] Here and elsewhere in this chapter, "rural counties" and "urban counties" refer to nonmetro and metro counties, respectively.

Table 10-13—Board-Certified Osteopathic Physicians (DOs) by Specialty, 1986[a]

Certification board	Number of DOs, 1986	Percent of board-certified DOs
Anesthesiology	227	3.5
Dermatology	58	0.9
Emergency medicine	108	1.6
General practice	2,582	39.3
Internal medicine	1,020	15.5
Neurology/psychiatry	139	2.1
Nuclear medicine	80	1.2
Obstetrics/gynecology	180	2.7
Opthamology/otorhinolaryngology	330	5.0
Pathology	226	3.4
Pediatrics	170	2.6
Proctology	72	1.1
Public health/preventive medicine	64	1.0
Radiology	452	6.9
Rehabilitation medicine	82	1.2
General surgery	398	6.1
Neurologic surgery	17	0.3
Orthopedic surgery	193	2.9
Plastic & reconstructive surgery	3	0.0
Thoracic surgery	32	0.5
Urologic surgery	59	0.9
Other	85	1.3
Total	6,566	100.0

[a] Only 26 percent of all DOs were board-certified in 1986.

SOURCE: U.S. Department of Health & Human Services, Health Resources and Services Administration, Bureau of Health Professions, Sixth Report to The President & Congress on The Status of Health Personnel in the United States, DHHS Pub. No. HRS-P-OD-88-1 (Rockville, MD: HRSA, June 1988), table 3-13.

BELINGTON CLINIC
823-2800
Family Practice
Pediatrics
O.B./Gyn
Dentistry
SAT 9-12

Photo credit: Peter Beeson

Primary care physicians make up the majority of physicians in rural areas.

size,[23] with the smallest rural counties having fewer than one-half as many primary care physicians and approximately one-ninth as many nonprimary care physicians per capita as the largest rural counties.

The supply of different types of primary care specialists (MDs only) likewise varies considerably by county size (table 10-16) (*686*). General/family practitioners are by far the most evenly distributed across all county types and sizes, although even these physicians are much less common in very small counties. Other primary care specialists are less evenly distributed. Rural counties have fewer than one-third as many general internists, approximately one-fourth as many general pediatricians, and slightly more than one-fifth as many obstetrician/gynecologists per capita as urban counties have (*686*).

Wide variations in rural physician supply exist among States and regions (table 10-17) (*511*). The South consistently has rural physician-to-population ratios below the national rural average for all MDs, DOs, and primary care MDs. Numbers of primary care MDs per 100,000 residents in rural areas range from 41.7 in Alabama to 99.1 in New Hampshire (table 10-17) (*511*). An in-depth study of physician supply in small (fewer than 10,000 residents) rural counties also found considerable regional and State

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[23] Unless otherwise indicated, county size in this chapter refers to population rather than geographic size of county.

Table 10-14—Distribution of Osteopathic Physicians (DOs) by Geographic Region and State, 1986[a]

	Number of DOs	Percent of DOs[b]
Northeast	6,194	24.3
Connecticut	58	0.2
Maine[c]	309	1.2
Massachusetts	171	0.7
New Hampshire	19	0.1
New Jersey[c]	1,444	5.7
New York[c]	799	3.1
Pennsylvania[c]	3,252	12.8
Rhode Island	110	0.4
Vermont	32	0.1
Midwest	9,752	38.2
Illinois[c]	802	3.1
Indiana	300	1.2
Iowa[c]	672	2.6
Kansas	320	1.3
Michigan[c]	3,555	14.0
Minnesota	83	0.3
Missouri[c]	1,521	6.0
Nebraska	27	0.1
North Dakota	10	*
Ohio[c]	2,141	8.4
South Dakota	34	0.1
Wisconsin	287	1.1
South	5,275	20.7
Alabama	48	0.2
Arkansas	48	0.2
Delaware	92	0.4
District of Columbia	19	0.1
Florida[c]	1,638	6.4
Georgia	222	0.9
Kentucky	75	0.3
Louisiana	28	0.1
Maryland	68	0.3
Mississippi	50	0.2
North Carolina	67	0.3
Oklahoma[c]	878	3.4
South Carolina	34	0.1
Tennessee	102	0.4
Texas[c]	1,586	6.2
Virginia	104	0.4
West Virginia[c]	216	0.8
West	2,791	11.1
Alaska	29	0.1
Arizona	717	2.8
California[c]	727	2.9
Colorado	396	1.6
Hawaii	42	0.2
Idaho	40	0.2
Montana	34	0.1
Nevada	63	0.2
New Mexico	154	0.6
Oregon	254	1.0
Utah	22	0.1
Washington	298	1.2
Wyoming	15	0.1
Public Health Service	116	0.4
U.S. Total	24,128	100.0

NOTE: * = less than 0.5 percent of the total number of DOs.

[a] Includes residents and interns (12.0 percent of total), retired and inactive DOs (5.7 percent); DOs in research, education, administration, and other nonpatient care fields (2.0 percent); and DOs whose professional activity was unknown (20.3 percent). Excludes DOs in U.S. possessions and in military service.

[b] Percentages may not add to totals due to rounding.

[c] States with colleges of osteopathic medicine.

SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Sixth Annual Report to The President & Congress on The Status of Health Personnel in The United States, DHHS Pub. No. HRS-P-OD-88-1 (Rockville, MD: HRSA, June 1988), table 3-16.

Table 10-15—Supply of Professionally Active Physicians[a] in Primary Care and Nonprimary Care by Type of County, 1979 and 1988[b]

County classification and county size	All active[e]					Primary care[c]					Nonprimary care[d]				
	1979		1988		Percent change in rate 1979-88	1979		1988		Percent change in rate, 1979-88	1979		1988		Percent change in rate, 1979-88
	Number	Rate per 100,000 population	Number	Rate per 100,000 population		Number	Rate per 100,000 population	Number	Rate per 100,000 population		Number	Rate per 100,000 population	Number	Rate per 100,000 population	
Metro	312,529	181.7	424,192	225.3	24.0	128,520	74.7	161,349	86.8	16.1	184,009	107.0	262,843	138.5	29.5
Nonmetro	41,002	78.0	53,338	96.7	24.1	24,070	45.8	30,461	55.3	20.8	16,932	32.2	22,877	41.4	28.7
50,000 and over	17,950	101.8	24,249	128.0	25.8	8,987	51.0	11,691	61.8	21.4	8,963	50.8	12,558	66.2	30.3
25,000 to 49,999	13,261	77.5	17,153	95.7	23.4	7,846	45.9	10,059	56.1	22.4	5,415	31.7	7,094	39.5	24.9
10,000 to 24,999	7,924	57.2	9,766	68.3	19.3	5,691	41.1	6,936	48.5	18.1	2,233	16.1	2,830	19.8	22.6
5,000 to 9,999	1,510	47.9	1,759	56.2	17.1	1,244	39.5	1,438	45.9	16.2	266	8.4	321	10.2	21.3
2,500 to 4,999	311	44.5	359	52.7	18.4	264	37.8	296	43.4	15.0	47	6.7	63	9.2	37.5
Fewer than 2,500	46	28.2	52	32.5	15.2	38	23.3	41	25.6	9.9	8	4.9	11	6.9	40.1
Population < 10,000:															
<= 6 persons/ square mile	620	47.0	783	59.9	27.4	495	37.5	620	47.4	26.4	125	9.5	163	12.5	31.5
>6 persons/ square mile	1,257	46.2	1,408	52.2	13.0	1,057	38.9	1,167	43.3	11.4	200	7.4	241	8.9	21.6
U.S. total	353,531	157.4	477,530	196.2	24.6	152,590	67.9	191,810	79.7	17.2	200,941	89.5	285,720	116.5	30.2

[a] Includes American Medical Association and American Osteopathic Association data. Includes physicians in research, administration, and teaching, and physicians in Federal service.

[b] 1988 MD data as of Jan. 1. Data for 1979 as of Dec. 31.

[c] Includes general/family practice, internal medicine, pediatrics, obstetrics/gynecology, and 1987 DO patient care.

[d] MDs only.

[e] 1987 population estimates were used to calculate 1988 MD and 1987 DO ratios. 1979 population estimates were used to calculate 1979 MD and DO ratios.

SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Office of Data Analysis and Management, Rockville, MD, unpublished data from the Area Resource File System provided to OTA in 1989 and 1990.

Table 10-16—Supply of Primary Care MDs by Specialty and Type of County, 1975 and 1988[a]

	General/family practice					General internal medicine				
	1975		1988		Percent change in rate 1975-88	1975		1988		Percent change in rate 1975-88
	Number	Rate per 100,000 residents[b]	Number	Rate per 100,000 residents[b]		Number	Rate per 100,000 residents[b]	Number	Rate per 100,000 residents[b]	
Metro	37,916	22.5	47,771	25.4	12.9	45,157	24.7	74,624	39.6	60.3
Nonmetro	13,595	27.0	16,251	29.5	9.1	2,855	5.5	6,207	11.3	104.5
50,000 and over	3,981	23.8	5,021	26.5	11.6	1,546	8.9	3,147	16.6	86.7
25,000 to 49,999	4,495	27.4	5,304	29.6	7.8	906	5.4	2,020	11.3	107.1
10,000 to 24,999	3,934	29.7	4,591	32.1	8.2	355	2.6	914	6.4	144.3
5,000 to 9,999	931	30.3	1,070	34.2	12.7	41	1.2	108	3.4	177.9
2,500 to 4,999	218	31.0	235	34.5	11.4	7	1.0	14	2.1	105.7
Fewer than 2,500	36	22.0	30	18.8	-14.7	0	0.0	4	2.5	0.0
Population < 10,000:										
<= 6 persons/sq. mile	427	32.8	484	37.0	12.9	16	1.2	48	3.7	218.1
6+ persons/sq. mile	761	28.6	857	31.8	11.2	32	1.1	81	3.0	165.6
U.S. total	51,511	23.5	64,022	26.3	11.8	48,012	20.3	80,831	33.2	63.9

	General pediatrics					Obstetrics/gynecology				
	1975		1988		Percent change in rate 1975-88	1975		1988		Percent change in rate 1975-88
	Number	Rate per 100,000 residents[b]	Number	Rate per 100,000 residents[b]		Number	Rate per 100,000 residents[b]	Number	Rate per 100,000 residents[b]	
Metro	18,651	10.3	30,615	16.3	58.5	18,654	10.8	26,993	14.3	32.6
Nonmetro	1,351	2.6	2,646	4.8	81.7	1,653	3.2	2,908	5.3	62.4
50,000 and over	783	4.6	1,446	7.6	65.6	949	5.6	1,581	8.3	48.4
25,000 to 49,999	436	2.6	893	5.0	89.4	554	3.4	993	5.5	64.8
10,000 to 24,999	123	0.9	278	1.9	117.9	139	1.0	303	2.1	110.7
5,000 to 9,999	7	0.2	23	0.7	221.2	11	0.4	20	0.6	77.8
2,500 to 4,999	2	0.3	6	0.9	208.6	0	0.0	9	1.3	0.0
Fewer than 2,500	0	0.0	0	0.0	0.0	0	0.0	2	1.3	0.0
Population < 10,000:										
<= 6 persons/sq. mile	3	0.2	14	1.1	363.9	2	0.2	18	1.4	794.7
6+ persons/sq. mile	6	0.2	15	0.6	145.9	9	0.3	14	0.5	53.0
U.S. total	20,002	8.5	33,261	13.7	61.0	20,307	9.1	29,901	12.3	35.7

[a] 1988 MD data as of Jan. 1. Data for 1979 as of Dec. 31.

[b] 1987 population estimates were used to calculate 1988 MD ratios. Prior to 1988, population estimates used were for the same year as MD data.

SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Office of Data Analysis and Management, unpublished data from the Area Resource File System provided to OTA in 1989 and 1990.

Table 10-17—Professionally Active MDs, Primary Care MDs, and DOs per 100,000 Residents in Metropolitan and Nonmetropolitan Areas by Region and State, 1987/1988[a]

	Total active MDs[b] per 100,000 residents, 1988		Total active DOs[c] per 100,000 residents, 1987		Primary care MDs[d] per 100,000 residents, 1988	
	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro
United States	243.1	94.7	10.3	6.6	98.5	56.2
Northeast	284.1	137.0	12.2	7.8	112.9	67.3
New England	291.8	182.0	4.4	8.6	102.7	85.1
Connecticut[e]	291.3	0.0	1.8	0.0	102.4	0.0
Maine	195.9	140.1	26.5	16.7	101.9	84.5
Massachusetts	328.2	171.5	2.6	2.3	106.8	73.9
New Hampshire	151.0	274.3	1.7	2.7	64.7	99.1
Rhode Island[e]	242.7	NA	10.3	NA	104.4	NA
Vermont	396.1	174.4	2.9	6.1	138.9	82.7
Middle Atlantic	281.6	118.5	14.8	7.4	116.3	59.9
New Jersey[e]	233.3	NA	18.0	NA	107.1	NA
New York	326.6	122.0	4.5	2.0	120.0	56.7
Pennsylvania	246.4	115.2	28.6	12.5	117.4	63.0
Midwest	226.6	82.5	17.1	10.7	102.1	57.4
East North Central	217.0	85.2	18.0	8.8	100.3	54.3
Illinois	234.3	88.8	7.4	3.5	99.5	53.6
Indiana	184.1	78.8	5.6	3.9	78.1	47.5
Michigan	204.7	81.2	39.6	20.2	114.2	60.0
Ohio	220.6	80.4	20.7	12.2	103.0	52.5
Wisconsin	222.8	98.9	6.9	2.9	89.7	58.6
West North Central	258.2	79.1	14.3	13.1	108.1	61.1
Iowa	233.6	77.0	34.4	11.6	115.6	56.4
Kansas	237.0	93.3	13.9	10.0	97.1	65.1
Minnesota	278.3	82.7	1.5	2.2	106.5	58.3
Missouri	257.7	58.1	22.0	36.3	113.8	68.6
Nebraska	258.6	84.1	2.1	0.8	97.6	54.5
North Dakota	274.9	95.9	3.1	2.4	105.9	59.7
South Dakota	249.3	92.2	2.5	5.9	102.3	61.1
South	230.2	88.7	7.4	3.9	89.9	50.8
South Atlantic	251.3	105.2	6.7	3.2	95.6	54.0
Delaware	226.2	122.3	16.9	5.5	101.2	51.6
District of Columbia	583.1	NA	5.1	NA	191.8	NA
Florida	211.4	104.5	12.8	5.9	87.6	50.9
Georgia	205.9	91.7	5.0	2.6	78.5	48.8
Maryland	391.5	147.3	2.6	1.6	134.1	65.1
North Carolina	235.0	102.8	1.8	0.8	86.5	52.8
South Carolina	197.0	86.5	1.3	1.5	78.8	50.0
Virginia	233.5	108.5	2.8	1.3	89.5	56.1
West Virginia	210.3	138.2	9.6	11.8	88.8	68.7
East South Central	225.6	79.2	2.0	2.4	86.0	47.1
Alabama	197.5	66.3	2.0	1.6	79.3	41.7
Kentucky	244.2	88.3	2.3	2.1	89.5	50.8
Mississippi	205.4	88.3	2.3	2.4	79.7	49.5
Tennessee	243.3	69.3	1.8	3.6	91.1	44.5
West South Central	198.4	73.1	10.7	6.4	82.5	49.5
Arkansas	229.2	86.5	1.6	2.3	84.3	53.5
Louisiana	233.3	68.2	0.9	0.7	80.8	42.3
Oklahoma	191.8	74.3	31.5	16.1	104.6	57.7
Texas	189.3	68.6	10.6	6.5	79.6	47.2

(continued on next page)

Table 10-17—Professionally Active MDs, Primary Care MDs, and DOs per 100,000 Residents in Metropolitan and Nonmetropolitan Areas by Region and State, 1987/1988[a]—Continued

	Total active MDs[b] per 100,000 residents, 1988		Total active DOs[c] per 100,000 residents, 1987		Primary care MDs[d] per 100,000 residents, 1988	
	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro
West	233.5	114.6	5.8	5.6	91.6	63.9
Mountain	213.1	104.8	12.5	6.6	88.1	61.6
Arizona	220.7	93.1	22.6	9.1	101.6	59.0
Colorado	219.0	112.1	11.8	13.4	91.2	72.0
Idaho	172.7	106.4	4.1	4.0	66.9	56.3
Montana	202.9	131.9	2.0	4.6	60.1	71.1
Nevada	169.2	107.7	7.5	4.7	67.8	61.3
New Mexico	250.8	94.6	12.3	7.6	96.1	59.2
Utah	203.2	86.4	1.4	1.6	70.9	49.5
Wyoming	189.2	108.9	0.7	3.2	87.9	64.1
Pacific	238.8	128.7	4.1	4.2	92.5	67.2
Alaska[e]	131.0	NA	7.0	NA	69.5	NA
California	244.2	129.5	3.1	2.8	93.0	64.8
Hawaii	226.1	169.1	6.7	4.0	99.2	88.5
Oregon	229.4	124.8	10.2	4.9	94.4	66.3
Washington	223.1	119.9	7.4	5.5	90.0	65.2

NOTE: NA = not applicable (see footnote e).

[a] Population estimates are for 1987.

[b] Includes MDs of all specialties in patient care, research, administration, and teaching. American Medical Association data as of Jan. 1, 1988.

[c] Includes DOs of all specialties in patient care, research, administration, and teaching. American Osteopathic Association data as of 1987.

[d] Includes MD family practitioners, general practitioners, general pediatricians, general internists, and obstetrician/gynecologists.

[e] For the purposes of this analysis, Rhode Island and New Jersey were considered to have no nonmetro counties, and Alaska was considered all one "county" (so the entire population is listed under the "metro" column).

SOURCE: T.C. Ricketts, Rural Health Research Center, University of North Carolina, Chapel Hill, NC. Analysis of unpublished data (provided by the Health Resources and Services Administration) conducted under contract with the Office of Technology Assessment, 1989.

variations (table 10-18) (*318*). The number of physicians (MDs and DOs) per 100,000 residents in small rural counties ranged from 39 in the East South Central Region to 75 in the Pacific region, and from 31 in Georgia to 86 in California (*318*).

Rural hospitals have fewer than one-half the medical staff of urban hospitals with a comparable number of beds (see table 5-7) (*625*).[24] Rural hospitals with fewer than 50 beds have roughly one-third the medical staff of their urban counterparts. Among rural hospitals, frontier hospitals have particularly small medical staffs (*625*). Table 10-19 presents rural-urban differences by hospital size category for each physician specialty.[25]

Travel Times to Physicians in Rural Areas

Rural residents travel for longer periods of time to receive medical care than do their urban counterparts. In a 1985 survey, 22 percent of rural residents reported that they had to travel outside of their community to receive any kind of medical care (*303*). Rural residents have longer average travel times to every type of physician (table 10-20) (*644*). Differences are least for travel to primary care physicians, especially general practitioners, and greatest for secondary care physician specialists. On average, for example, a rural resident must travel twice as long as does an urban resident to visit a neurologist (*644*).

Among rural residents, those living on farms generally have relatively greater travel times to physicians (table 10-20) (*644*). With few exceptions, poor rural residents also have slightly longer travel times to physicians than do residents with higher incomes (table 10-21) (*644*). The exceptions may be due to physical or financial constraints upon poor

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[24] Includes both board-certified and nonboard-certified medical staff (MDs and DOs).

[25] Physician specialty as reported by each hospital.

Table 10-18—Physician-To-Population Ratios (1985), Percentage of DOs (1985), and Percent Change in Ratios (1975-85) in Small Nonmetropolitan Counties, by Region and State

Region and State[a]	Number of small nonmetro counties[b]	Physicians per 100,000 residents (1985)	Percent DOs (1985)[c]	Percent change in physician-to-population ratio, 1975-85
Northeast	0	0.0	0.0%	0.0%
Midwest	291	58.4	21.7	16.5
East North Central	33	47.2	7.2	14.0
Illinois	13	33.3	6.7	-11.4
Indiana	5	31.5	16.7	10.5
Michigan	10	70.5	5.6	36.9
Wisconsin	5	49.2	6.7	20.0
West North Central	258	60.2	23.5	17.9
Iowa	15	53.3	45.5	-4.3
Kansas	61	76.3	24.7	28.7
Minnesota	12	56.6	18.2	7.0
Missouri	26	58.1	73.7	-0.3
Nebraska	61	51.5	1.3	15.8
North Dakota	36	52.8	6.5	39.3
South Dakota	47	61.0	7.3	39.3
South	244	43.1	11.2	16.0
East South Central	46	38.7	5.9	9.2
Kentucky	24	40.5	2.7	17.7
Mississippi	8	35.6	11.1	1.4
Tennessee	14	35.6	11.1	1.4
West South Central	110	49.1	18.1	5.1
Arkansas	8	34.6	4.3	18.9
Oklahoma	15	56.3	36.4	-0.3
Texas	87	49.7	14.8	-3.3
South Atlantic	88	40.0	6.3	26.6
Florida	8	41.9	12.0	41.1
Georgia	47	31.3	10.0	11.4
North Carolina	8	45.8	0.0	24.5
Virginia	16	53.6	1.7	52.3
West Virginia	9	49.3	4.9	3.8
West	140	63.9	7.5	25.9
Mountain	120	60.8	8.7	14.9
Colorado	31	53.2	3.9	-9.8
Idaho	20	52.0	10.5	30.3
Montana	34	68.7	12.0	33.9
New Mexico	9	56.1	12.0	10.4
Nevada	7	56.6	18.2	7.0
Utah	11	65.3	0.0	20.3
Wyoming	8	77.5	11.6	26.6
Pacific	20	75.0	3.4	36.7
California	4	86.2	5.3	85.0
Oregon	8	68.0	3.3	17.4
Washington	8	76.0	2.6	7.6
All nonmetro counties with fewer than 10,000 residents		53.0	15.3	14.2
Entire United States[d]		164.8	5.1	33.6

[a] Only includes the 32 States with nonmetro counties having fewer than 10,000 residents.

[b] Number of nonmetro counties with fewer than 10,000 residents in each State. No States in the Northeast region had nonmetro counties with fewer than 10,000 residents.

[c] Doctors of osteopathy.

[d] Includes all metro and nonmetro counties.

SOURCE: D.A. Kindig and H. Movassaghi, "The Adequacy of Physician Supply in Small Rural Counties," Health Affairs vol. 8, No. 2, 1989, pp. 63-76, exhibits 4 and 5.

Table 10-19—Average Number of Hospital Medical Staff[a] in Selected Specialties by Hospital Bed Size and Metropolitan/Nonmetropolitan Status, 1987

Medical specialty	Hospital bed size: 6-24 Percent with none[b]	6-24 Mean number per hospital	25-49 Percent with none[b]	25-49 Mean number per hospital	50-99 Percent with none[b]	50-99 Mean number per hospital	100-199 Percent with none[b]	100-199 Mean number per hospital	200-299 Percent with none[b]	200-299 Mean number per hospital
General/family practice										
Nonmetro	3.0	2.7	21.6	4.21	1.2	6.36	0.7	9.29	2.2	12.53
Metro	12.9	3.96	3.5	6.57	1.6	10.31	2.4	17.69	3.2	22.45
General internal medicine										
Nonmetro	83.0	1.47	59.4	1.73	27.1	2.96	9.1	5.65	1.5	10.14
Metro	83.9	11.60*	25.2	4.92	4.7	7.00	2.1	14.60	.7	26.16
Pediatrics[c]										
Nonmetro	97.0	1.17*	85.7	1.30	50.3	1.70	21.9	3.01	5.2	4.96
Metro	93.5	6.00*	62.9	2.57	30.4	3.27	12.4	6.44	6.6	11.83
Other medical specialties[c]										
Nonmetro	95.0	1.90	84.5	1.89	72.1	2.80	49.7	4.44	19.3	7.54
Metro	90.3	1.67*	60.1	7.14	37.9	7.59	13.4	14.59	7.0	25.30
Obstetrics/gynecology										
Nonmetro	89.5	1.38	81.5	1.39	46.4	1.96	18.2	3.32	4.4	5.42
Metro	90.3	4.00*	51.0	3.00	17.8	4.09	3.6	7.76	1.5	12.63
Ophthalmology										
Nonmetro	90.5	2.37	91.1	1.47	64.8	1.41	26.7	2.21	8.1	3.26
Metro	74.2	9.38*	67.8	3.22	34.9	2.52	8.1	4.44	1.3	6.94
Orthopedic surgery										
Nonmetro	93.0	1.43	82.6	1.59	54.5	1.79	23.0	2.73	4.4	3.91
Metro	74.2	2.63*	54.5	2.80	19.9	3.66	3.4	6.22	1.3	9.42
Plastic surgery										
Nonmetro	99.5	1.00*	98.8	1.20	94.7	1.11	83.7	1.40	60.7	1.55
Metro	83.9	1.80*	79.7	2.93	63.7	2.26	30.3	2.78	13.5	3.75
General surgery										
Nonmetro	65.5	1.52	36.4	1.55	15.6	2.18	6.1	3.46	0.7	5.43
Metro	58.1	2.31	20.3	3.34	3.7	4.50	1.3	8.03	0.7	12.59
Thoracic surgery										
Nonmetro	98.5	1.00*	97.3	1.14	94.5	1.29	80.5	1.50	54.1	1.82
Metro	93.5	2.50*	85.3	2.62	75.4	2.41	34.8	2.87	15.5	3.75
Other surgical specialties[c]										
Nonmetro	84.5	1.29	80.4	1.96	55.0	2.39	26.9	4.19	5.9	6.88
Metro	64.5	2.00	56.6	6.74	19.4	6.42	6.5	12.12	3.7	18.34

Table 10-19—Average Number of Hospital Medical Staff[a] in Selected Specialties by Hospital Bed Size and Metropolitan/Nonmetropolitan Status, 1987—Continued

	Hospital bed size									
	6-24		25-49		50-99		100-199		200-299	
Medical specialty	Percent with none[b]	Mean number per hospital	Percent with none[b]	Mean number per hospital	Percent with none[b]	Mean number per hospital	Percent with none[b]	Mean number per hospital	Percent with none[b]	Mean number per hospital
Anesthesiology										
Nonmetro	92.0	2.13	89.8	1.39	67.7	1.56	30.6	2.35	8.9	3.63
Metro	71.0	5.33*	54.5	3.05	26.5	3.12	3.8	4.74	1.5	6.92
Dermatology										
Nonmetro	100.0	--	98.5	1.33	95.4	1.10	77.0	1.25	47.4	1.69
Metro	93.5	1.50*	86.7	1.42	81.3	1.84	47.0	1.99	22.5	2.77
Emergency medicine										
Nonmetro	97.5	2.60*	91.1	3.86	69.4	2.97	43.8	3.51	16.3	4.32
Metro	93.5	4.50*	74.8	4.08	40.5	3.55	18.9	5.11	10.8	5.84
Nuclear medicine										
Nonmetro	100.0	--	99.3	1.67*	97.5	1.82	91.7	1.73	78.5	1.66
Metro	100.0	--	93.7	1.78*	89.7	2.07	76.2	2.17	61.5	2.82
Pathology[c]										
Nonmetro	79.0	1.98	71.7	2.07	47.7	1.56	19.7	1.74	3.7	2.37
Metro	71.0	2.00*	49.0	1.97	20.6	2.05	4.0	2.46	1.0	3.44
Psychiatry										
Nonmetro	99.0	1.00*	96.3	1.37	84.5	1.38	57.9	1.88	24.4	3.00
Metro	90.3	2.67*	84.6	3.55	63.7	2.74	29.9	4.27	13.2	7.28
Radiology[c]										
Nonmetro	75.0	2.06	59.7	1.74	28.2	1.75	12.6	2.58	3.0	4.13
Metro	71.0	2.44*	35.7	2.46	11.0	2.66	2.9	4.51	0.8	6.40
Other specialties[c]										
Nonmetro	70.5	3.49	71.0	5.49	67.1	5.81	67.7	5.65	57.0	6.03
Metro	48.4	5.25	63.6	7.56	54.3	8.99	50.5	9.07	49.0	11.26

NOTE: "*" indicates mean is based on fewer than 10 cases.

[a] Includes all active an associate medical staff, board-certified and nonboard-certified. Excludes courtesy, consulting, honorary, provisional, or other medical staff.

[b] Percentage of hospitals within each bed size category reporting no medical staff in that particular specialty.

[c] "Pediatrics" includes pediatrics, pediatric allergy, and pediatric cardiology; "Other medical specialties" includes allergy, physical medicine and rehabilitation, cardiovascular diseases, gastroenterology, pulmonary diseases, nephrology, neurology, and child psychiatry; "Other surgical specialties" includes neurological surgery, otolaryngology, colon and rectal surgery, urology, oral and maxillofacial surgery; "Pathology" includes pathology and forensic pathology; "Radiology" includes radiology, diagnostic radiology, and therapeutic radiology; "Other specialties" include aerospace medicine, occupational medicine, general preventive medicine, and public health.

SOURCE: U.S. Congress, Office of Technology Assessment, analysis of data from American Hospital Association 1987 Survey of Hospitals, performed for Rural Health Care report (see app. C).

Table 10-20—Average Travel Time to Physicians for Metropolitan and Nonmetropolitan Residents, 1983

Type of physician	Mean travel time (minutes)			
		Nonmetro		
	Metro	All	Nonfarm	Farm
All physicians	20	25	24	35
All primary care physicians	18	20	20	26
General practitioners	17	18	18	23
Internists	21	32	32	36
Pediatricians	17	23	23	31
Obstetrician/gynecologists	19	24	23	36
Family practitioners	16	20	20	*
Osteopaths	14	16	16	17
All secondary care specialists	24	37	36	57
Surgeons	23	25	25	22
Orthopedists	24	36	35	46
Ophthalmologists	25	41	39	70
Neurologists	28	58	58	*
Radiologists/oncologists	30	58	48	86
Urologists	23	38	36	59
Dermatologists	20	34	34	27
Proctologists	22	54	54	*
Otolaryngologists	24	37	37	31
Psychiatrists	24	33	33	*
Anesthesiologists/pathologists	20	73	73	*
Other specialists	29	40	40	60

NOTE: Not all metro areas are included. Sample sizes in some cases may be very small. Statistical significance of differences in times cannot be calculated. Asterisks ("*") indicate that no one in the sample met the specifications for that entry.

SOURCE: U.S. Department of Health and Human Services, Centers for Disease Control, National Center for Health Statistics, Hyattsville, MD, unpublished travel time data from the 1983 National Health Interview Survey provided by E. Parsons, May 1989.

rural residents to visit the physician closest to their homes.

Counties With No Physicians

In 1988, 111 rural counties (with an aggregate resident population of 325,100) had no physician at all (table 10-22) (*511*). These counties are concentrated in the West North Central, South Atlantic, West South Central, and Mountain census divisions.

More detailed data are available for MDs alone. In 1988, 176 counties (with a total resident population of 713,700) had no primary care MD (table 10-23) (*686*). All of these were rural counties with fewer than 25,000 residents, and 166 were counties with fewer than 10,000 residents. Well over one-half were frontier counties. Among MDs, general/family practitioners are the most ubiquitous specialists; they were present in all but 205 rural counties and all but 2 urban counties (figure 10-2) (*686*).

Changes in Rural and Urban Physician Supply

Federal policies regarding health personnel have been influenced not only by GMENAC's projections of increases in supply but also by three RAND Corp. studies conducted in the early 1980s which suggested that overall growth in physician supply would in time solve the problem of geographic maldistribution of physicians.

All three studies examined changes in the supply of physicians in towns with populations of 2,500 and more during the 1960s and 1970s. The first study (*550*) found that the number of board-certified specialists per capita increased more in smaller towns than in larger towns. The second (*436*) found that by 1979, nearly every town of more than 2,500 residents had ready access to a physician. The third (*727*) found that 96 percent of towns with a population of at least 2,500 were fewer than 10 miles away from a physician and that 98 percent of the U.S. population lived within 25 miles of a general or family practitioner. These three studies, however, had some limitations: they excluded towns with fewer than 2,500 residents, the results were dominated by findings in towns with more than 10,000 residents, and they excluded DOs and Federal physicians (*318*).

From these three studies policymakers concluded that market forces play a significant role in the distribution pattern of physicians, and that a greater supply of physicians in a particular specialty will lead to a greater diffusion of those specialists into rural areas. In the wake of RAND and GMENAC studies, Federal efforts to improve the geographic distribution of health personnel decreased significantly (*68,318,462*). However, more recent State and national studies have found that increases in national supply have not consistently produced corresponding increases in rural supply, particularly in small or isolated rural areas, and that rural/urban disparities in overall physician supply have actually widened during the past two decades. Summaries of the studies follow.

Table 10-21—Average Travel Time to Physicians for Nonmetropolitan Residents by Incomes Above or Below the Federal Poverty Level, 1983

Type of physician	Mean travel time (minutes) All nonmetro	Above Poverty Level	Below Poverty Level	Income Unknown
All physicians	25	24	25	29
All primary care physicians	20	20	22	21
General practitioners	18	17	22	18
Internists	32	31	35	42
Pediatricians	23	22	28	26
Obstetrician/gynecologists	24	25	15	33
Family practitioners	20	20	*	20
Osteopaths	16	17	15	2
All secondary care specialists	37	36	39	46
Surgeons	25	24	32	30
Orthopedists	36	36	38	28
Ophthalmologists	41	38	53	70
Neurologists	58	65	46	27
Radiologists/oncologists	58	57	25	64
Urologists	38	35	45	62
Dermatologists	34	33	30	40
Proctologists	54	54	*	*
Otolaryngologists	37	35	51	44
Psychiatrists	33	35	43	14
Anesthesiologists/pathologists	73	25	*	120
Other specialists	40	41	13	47

NOTE: Sample sizes in some cases may be very small. Statistical significance of differences in times cannot be calculated. Asterisks ("*") indicate that no one in the sample met the specifications for that entry.

SOURCE: U.S. Department of Health and Human Services, Centers for Disease Control, National Center for Health Statistics, Hyattsville, MD, unpublished travel time data from the 1983 National Health Interview Survey provided by E. Parsons, May 1989.

National Studies Examining Change in Rural Physician Supply—A Bureau of Health Professions (BHPr) study found that during the 1970s, the greatest improvement in the number of patient care and office-based primary care physicians per capita occurred in large (more than 25,000 residents) rural counties and small urban counties, with the smaller rural counties experiencing comparatively small increases (*683*). A study of physician distribution trends between 1950 and 1978 singled out those counties with the smallest populations and the poorest physician-to-population ratios as those with the least improvement in supply (*205*). A study of changes in physician supply in individual rural communities between 1971 and 1981 found that a large number of these communities did not experience increases in physician supply, and that some even experienced decreases (*738*).

A study of young physicians settling in rural areas between 1975 and 1979 (*332*) found that 60 percent of all rural counties had either not attracted any new young physicians or had lost some. The Northern and Western regions had the most success attracting young physicians, while the Central region had the least success. A later study found that in 1983, 31 percent of the least populated as compared with 92 percent of the most populated rural counties had gained at least one young graduate (*334*). This study concluded that physicians tend to locate in larger, more attractive rural communities, and that less attractive communities have difficulty attracting physicians without special targeted efforts.

More recent BHPr data indicate that relatively slow increases in physician supply in small rural counties have continued through the 1980s. From 1979 to 1988, the number of office-based MDs per 100,000 residents rose 18 percent in rural counties of fewer than 10,000 residents compared with 23 percent in all rural counties and 25 percent in urban counties; the corresponding increases for all patient care MDs were 17, 24, and 24 percent (table 10-24) (*686*). In 1988, the incidence of patient-care MDs in

Table 10-22—Number and Resident Population of Nonmetropolitan[a] Counties Without a Professionally Active Physician (MD or DO), 1988[a] [b]

	Number of nonmetro[a] counties	Resident population of counties[d]
United States	111	325,100
Northeast	1	4,900
New England	0	0
Middle Atlantic	1	4,900
New York	1	4,900
Midwest	49	138,600
East North Central	2	7,300
Indiana	1	5,400
Michigan	1	1,900
West North Central	47	131,300
Kansas	1	2,200
Missouri	2	16,100
Nebraska	19	40,700
North Dakota	10	32,100
South Dakota	15	40,200
South	37	137,200
South Atlantic	14	66,500
Florida	1	6,800
Georgia	10	37,200
North Carolina	1	9,700
Virginia	2	12,800
East South Central	6	36,000
Mississippi	3	19,200
Tennessee	3	16,800
West South Central	17	34,700
Texas	17	34,700
West	24	44,400
Mountain	22	40,700
Colorado	4	7,400
Idaho	3	12,400
Montana	9	12,200
Nevada	2	3,200
New Mexico	1	1,000
Utah	3	4,500
Pacific	2	3,700
Oregon	2	3,700

[a] There were no metro counties without an active MD or DO in 1988.

[b] Includes physicians of all specialties in patient care, research, administration, and teaching. This is a listing of counties that have no professionally active MD and no professionally active DO.

[c] Data from the American Medical Association as of Jan. 1, 1988. Data from the American Osteopathic Association as of 1987.

[d] Resident population is only for those counties included in the listing. Resident population estimates are for 1987.

SOURCE: T.C. Ricketts, Rural Health Research Center, University of North Carolina, Chapel Hill, NC. Analysis of unpublished data (provided by the Health Resources and Services Administration) conducted under contract with the Office of Technology Assessment, 1989.

Table 10-23—Number and Resident Population of Counties Without a Primary Care MD[a] [b] by Type of County, 1988[c]

	Number of counties	Resident population
Metro	0	0
Nonmetro	176	713,700
50,000 and over	0	0
25,000 to 49,999	0	0
10,000 to 24,999	10	119,500
5,000 to 9,999	47	327,800
2,500 to 4,999	45	160,300
Fewer than 2,500	74	106,100
Population <10,000		
<=6 persons/square mile	112	267,900
>6 persons/square mile	54	326,300
U.S. total	176	713,700

[a] Excludes Federal MDs and MDs in the U.S. possessions.

[b] Includes general/family practice, general internal medicine, general pediatrics, and obstetrics/gynecology.

[c] American Medical Association data as of Jan. 1, 1988.

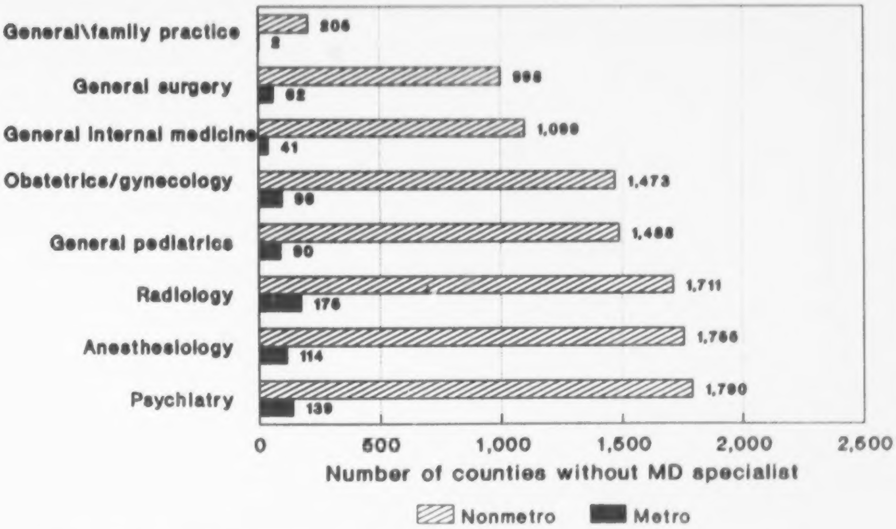
SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Office of Data Analysis and Management, Rockville, MD, unpublished data from the Area Resource File System provided to OTA in 1989 and 1990.

urban counties was more than twice as high as in all rural counties and more than 4 times as high as in rural counties of fewer than 10,000 residents (table 10-24) (*686*).

A characteristic of these trend data (and most detailed trend data on rural health personnel in this chapter) is that the underlying counties in each category can change dramatically over time as counties gain or lose population. As a result, changes in practitioner-to-population ratios—particularly in categories with only a small number of counties—can be abrupt, making trends more difficult to interpret.

As the RAND studies predicted, specialties with the greatest growth rates (i.e., the nonprimary care specialties) appear to be diffusing to small rural counties at a faster rate than that for primary care physicians. For primary care physicians (MDs and DOs), increases in supply were actually greater in the larger rural counties than in urban counties (table 10-15) (*686*). Within rural counties, however, in-

Figure 10-2—Number of Counties Without Selected MD Specialties by Metropolitan/Nonmetropolitan Status, 1988[a]



[a]Excludes Federal physicians and physicians in the U.S. possessions.

SOURCE: Office of Technology Assessment, 1990. Data from U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Office of Data Analysis and Management, unpublished 1988 data from the Area Resource File data system.

creases in primary care physician supply were directly proportional to county size, with the smallest counties (fewer than 2,500 residents) experiencing less than half the increase of the largest counties (25,000 or more residents). For nonprimary care physicians, the pattern was essentially the reverse: large rural counties had slightly greater increases than did urban counties, but increases in nonprimary care physician supply *within* rural counties were *inversely* proportional to county size (table 10-15). Within counties of fewer than 10,000 residents, counties with 6 or fewer persons per square mile had substantially greater increases of primary care and nonprimary care physicians than counties with higher population densities (table 10-15) (*686*). Some of these data may be misleading; in 1975 and 1979 there were so few nonprimary care physicians in the smallest rural counties that their ratios were remarkably sensitive to the addition of a small number of physicians (table 10-16) (*686*).

Within the primary care specialties, the supply of general/family practitioners increased more slowly from 1975 to 1988 in rural counties (9.1 percent) than in urban counties (12.9 percent), and actually decreased in rural counties with fewer than 2,500 residents (-14.7 percent) (table 10-16) (*686*). In contrast, the supply of general internists, general pediatricians, and obstetrician/gynecologists increased more in rural than in urban counties during this period (table 10-16) (*686*).

Kindig and Movassaghi undertook a detailed examination of physician availability in the 684 rural counties having fewer than 10,000 residents in both 1975 and 1985 (*318*). This study included all active Federal and non-Federal MDs and DOs, but excluded interns and residents.) They found that from 1975 to 1985, the mean level of physician availability increased by 34 percent in the United States as a whole but by only 14 percent in small rural counties (table 10-18). Percent change in physician-to-population ratios during the period ranged from 5 percent in the West South Central region to 37 percent in the Pacific region, and from 85 percent in California to -11 percent in Illinois (table 10-18). Primary care[26] physician availability increased more rapidly in all rural counties (42

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[26] "Primary care" physicians here include MDs in general/family practice, general internal medicine, general pediatrics, and obstetrics/gynecology.

Table 10-24—Total MDs, Patient Care MDs, and Office-Based MDs Per 100,000 Residents by Type of County, 1979 and 1988[a]

County classification and county population	1979	1988	Percent change, 1975-88
	Total MDs per 100,000 residents[b]		
Metro	219.3	262.6	19.7
Nonmetro	87.2	108.5	24.4
50,000 and over	116.3	146.7	26.1
25,000-49,999	86.8	106.2	22.4
10,000-24,999	62.0	74.7	20.5
0-9,999	48.6	58.2	19.6
U.S. total	188.4	227.7	20.9
	Patient care MDs per 100,000 residents[b]		
Metro	174.3	215.6	23.7
Nonmetro	73.3	90.5	23.5
50,000 and over	97.5	122.2	25.3
25,000-49,999	73.3	89.9	22.6
10,000-24,999	52.0	61.3	17.9
0-9,999	40.5	47.5	17.4
U.S. total	150.7	187.2	24.3
	Office-based MDs per 100,000 residents[b]		
Metro	123.5	153.8	24.5
Nonmetro	65.6	80.6	22.9
50,000 and over	85.9	107.0	24.6
25,000-49,999	66.4	81.3	22.3
10,000-24,999	46.7	54.9	17.5
0-9,999	37.4	44.1	17.7
U.S. total	110.0	137.2	24.8

[a] MD data for 1988 are as of Jan. 1. Prior to 1988, data are as of Dec. 31.

[b] 1987 population estimates were used to calculate 1988 MD ratios. Prior to 1988, population estimates used were for the same year as MD data.

SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Office of Data Analysis and Management, Rockville, MD, unpublished data from the Area Resource File system provided to OTA in 1989 and 1990.

percent) than in all urban counties (27 percent), but increased very little (9 percent)[27] in small rural counties (table 10-25) (*318*).

State Studies Examining Changes in Rural Physician Supply—Several State studies lend support to the findings of the national studies mentioned above:

- *In Pennsylvania,* overall physician-to-population ratios increased by 25 percent in rural and 32 percent in urban counties from 1970 to 1980.[28] Ratios for general and family practitioners actually dropped during this period for rural and urban counties alike (*145*).[29]
- *In Minnesota,* the primary care[30] physician-to-population ratio increased by 63 percent in urban counties from 1965 to 1985, but actually decreased by 2 percent in rural counties. The ratios of other specialists increased in smaller communities, however, and these physicians may actually be providing a substantial amount of primary care (*164*).
- *In Georgia,* physician-to-population ratios increased slightly more in rural areas (28 percent) than in urban areas (24 percent) between 1968

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[27] Increase was 8.7 percent with MDs only, and 9.4 percent when DOs were included.

[28] This analysis included MDs and DOs.

[29] This analysis did not include DOs.

[30] In this study, "primary care" included general/family practice, pediatrics (including subspecialties), and internal medicine (including subspecialties).

Table 10-25—Supply of Primary Care Physicians in Metropolitan, Nonmetropolitan, and Small Nonmetropolitan Counties, 1975 and 1985[a]

	1975		1985		Percent change in number of primary care physicians per 100,000 residents, 1975-88
	Primary care physicians per 100,000 residents	Percent of all patient care physicians	Primary care physicians per 100,000 residents	Percent of all patient care physicians	
Metro counties (MDs only)......	59.5	43.8	75.5	43.2	27
Nonmetro counties (MDs only)....	38.1	58.4	53.9	55.0	41
Nonmetro counties with fewer than 10,000 residents:					
MDs only.....................	32.2	81.0	35.0	77.9	9
MDs and DOs..................	37.3	80.7	40.8	77.0	9
U.S. total (MDs only)........	53.9	46.0	70.4	44.9	31

[a] Excludes medical residents and fellows; includes general practice, family practice, general internal medicine, general pediatrics, and obstetrics/gynecology.

SOURCE: D.A. Kindig and H. Movassaghi, "The Adequacy of Physician Supply in Small Rural Counties," Health Affairs, vol. 8, No. 2, 1989, pp. 63-76, exhibit 3.

and 1983, but wide variation in percent change existed within both urban and rural areas. In 1983, physician-to-population ratios in Georgia were still twice as high in urban as in rural areas (*740*).

Who Are Rural Physicians?

Rural areas rely much more heavily than urban areas on primary care physicians and DOs. Some rural areas also rely heavily on FMGs. Rural physicians are also older than their urban counterparts.

Primary Care Physicians—In 1988, primary care physicians accounted for 81 percent of all professionally active physicians in rural counties with fewer than 10,000 residents and 57 percent in all rural counties, compared with 38 percent in all urban counties and 40 percent in the United States as a whole (*686*).[31]

Doctors of Osteopathy—In 1985, DOs made up 15.3 percent of all patient care physicians in small rural counties compared with 5.1 percent for the United States as a whole (table 10-18) (*318*). The distribution of DOs by State is highly uneven. DOs constituted as much as 74 percent of all patient care physicians in Missouri's small rural counties, but were entirely absent in small rural counties in Utah and North Carolina (table 10-18) (*318*).

Foreign Medical Graduates—Although they are disproportionately located in urban areas, FMGs nonetheless play a significant role in health care in some rural areas. In Georgia in 1986, for example, FMGs were actually more common in rural areas: they accounted for 17 percent of physicians in rural counties but only 13 percent in urban counties (*167*). In 1985, FMGs accounted for 22 percent of patient care physicians in the United States as a whole, compared with 15 percent in rural counties with fewer than 10,000 residents (table 10-26) (*316*). The proportion of patient care physicians who were FMGs, however, increased much more quickly from 1975 to 1985 in small rural counties than in the country as a whole (table 10-26) (*316*), indicating that FMGs play an increasingly important role in health care in small rural counties.

The Age Distribution of Rural Physicians—The proportion of physicians who are young (under age 35) increased substantially in both urban and rural areas from 1975 to 1985, but rural physicians on the average are still older than their urban counterparts (table 10-27) (*686*). Physicians age 65 and over made up 13 percent of the rural physician population, compared with 9 percent in urban areas (table 10-27) (*686*). Elderly physicians make up an even

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[31] Includes MDs and DOs. Primary care here includes MDs in general/family practice, general internal medicine, general pediatrics, obstetrics/gynecology, and all DOs in patient care.

Table 10-26—Foreign Medical Graduate (FMG) Physician Supply in Small U.S. Nonmetropolitan Counties, 1975 and 1985

	1975		1985		Percent change in proportion of all patient care physicians who were FMGs[a], 1975-85
	Number of FMGs	As a percent of all patient care physicians	Number of FMGs	As a percent of all patient care physicians	
All nonmetro counties with fewer than 10,000 residents..	174	10	325	15	50
5,000-10,000..............	135	10	251	15	50
2,500-4,999...............	35	12	68	20	67
Fewer than 2,500..........	4	10	6	14	40
Population < 10,000:					
<= 6 persons/square mile..	71	12	119	17	42
>6 persons/square mile....	103	9	206	15	67
U.S. total[b]...........	46,165[c]	18.6	82,525	22.1	19

[a] Includes MDs and DOs.

[b] Includes all metro and nonmetro counties.

[c] 1976 figure.

SOURCE: D.A. Kindig and H. Movassaghi, "Trends in Physician Supply and Characteristics in Small Rural Counties of the United States 1975-1985," National Rural Health Association, Kansas City, MO, July 1987.

Table 10-27—Distribution of Primary Care MDs by Age in Metropolitan and Nonmetropolitan Counties, 1975 and 1985

Age	1975 Metro	1975 Nonmetro	1985 Metro	1985 Nonmetro
<35..........	27%	11%	33%	21%
35-44........	22	23	27	30
45-54........	23	29	16	18
55-64........	16	22	14	19
65+..........	11	15	9	13
Total[b].....	100	100	100	100

[a] Excludes Federal physicians and physicians in the U.S. possessions. Includes physicians in general/family practice, general internal medicine, general pediatrics, and obstetrics/gynecology.

[b] Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Office of Data Analysis and Management, Rockville, MD, unpublished data from the Area Resource File system provided to OTA in 1989 and 1990.

larger percentage (16 percent) of patient care physicians in small (fewer than 10,000 residents) rural counties (*316*).

Future Supply of Rural Physicians

Stability of Rural Physician Practices—Many physicians practicing in small rural counties reportedly view their counties as lacking sufficient health personnel. In a 1988 survey of physicians in these areas,[32] 32 percent of the respondents indicated that there were too few physicians in their counties. Based on these responses, researchers estimated a need for a 50 percent increase relative to the current supply of physicians in these counties (*405*). Twenty-six percent indicated that they would be leaving their respective communities within 5 years; of this group, about one-half were under age 45 (*405*).[33] Of the 510 respondents, 55 percent were in solo practice. Although this particular study offered no comparable data for urban physicians, a recent survey of Minnesota physicians found differences between rural and urban practitioners. Only 64 percent of rural physicians surveyed reported that it was "very likely" they would continue to practice

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[32] Data based on a 50 percent random sample mail survey of all MDs and DOs practicing in small rural counties in 1988. The survey response rate was 50 percent.

[33] Physicians were not asked whether they planned to relocate to an urban or to another rural community.

Table 10-28—Practice Location Preferences of Allopathic Medical School Seniors, 1979 and 1989[a]

Setting where student would most like to practice upon completion of medical training[b]	Percent of seniors	
	1979	1989
Large and moderate sized cities and suburbs	59.1	79.5
Large city (more than 500,000 residents)	17.2	23.7
Suburb of large city	10.1	17.4
City of moderate size (50,000 to 500,000 residents)	25.4	29.9
Suburb of moderate size city	6.4	8.5
Small city or town (not a suburb)	26.6	12.0
Small city (10,000 to 50,000 residents--other than suburb)	18.5	9.1
Town (2,500 to 10,000 residents--other than suburb)	8.1	2.9
Small town or rural area	3.2	1.5
Small town (fewer than 2,500 residents)	1.8	0.7
Rural/unincorporated area	1.4	0.8
Undecided or no preference	8.6	6.5
Other	1.0	NA
No response	1.5	0.4
Total[c]	100.0	100.0

NOTE: NA = not applicable.

[a] Reflects preferences indicated by allopathic medical school seniors on a graduation questionnaire. In 1979, 8,382 seniors (or 55 percent of all final year students) completed the questionnaire. In 1989, 11,175 students (or 72 percent of all final year students) completed the questionnaire.

[b] Does not reflect metro or nonmetro status of area.

[c] Percentages may not add to 100 due to rounding.

SOURCES: Association of American Medical Colleges, 1979 Medical Student Graduation Questionnaire Survey: Summary Report for All Schools (Washington, DC: Association of American Medical Colleges, 1979); Association of American Medical Colleges 1989 Graduate Questionnaire Results: All School Summary (Washington, DC: Association of American Medical Colleges, 1989).

medicine in their current geographic area during the next few years, compared with 74 percent of physicians Statewide and 79 percent of physicians in the Twin Cities metro area (*173*).

Location Choices of New Medical Graduates—Allopathic medical school graduates are increasingly expressing a reluctance to choose rural practice. In 1979, 27 percent of allopathic medical school seniors preferred to practice in a small city or larger town, and 3 percent preferred small towns or rural areas (table 10-28) (*58*). By 1989, these proportions had dropped to 12 percent and 1.5 percent, respectively (table 10-28) (*61*). Osteopathic physicians seem to have a markedly greater inclination towards rural practice than do allopaths. In 1988, 21 percent of senior osteopathic medical students reported that they intended to practice in communities of 10,000 to 50,000 people, and 9 percent intended to practice in communities of fewer than 10,000 people (*21*).

MIDLEVEL PRACTITIONERS

Nurse practitioners (NPs), certified nurse-midwives (CNMs), and physician assistants (PAs) (see box 10-B) have played valuable roles in providing primary health care services traditionally provided by physicians. Often referred to collectively as "midlevel practitioners" (MLPs), these three professional groups have developed rapidly since the 1960s in response to concerns over geographic maldistribution of primary care providers. Although MLPs can substitute for physicians in many instances in the delivery of primary medical care, their scope of practice is more limited. State medical and nurse practice laws that regulate these professions require some degree of physician supervision or collaboration. Within their areas of competence, MLPs provide care whose quality is equivalent to that of care provided by physicians, and they often do so at a comparatively low cost (*617*). NPs and, to a lesser extent, PAs see fewer patients and spend more time with each patient than do physicians, presumably because NPs provide nonmedical services such as counseling and health education during a patient visit (*617*). Notwithstanding the quality and cost-effectiveness of MLP care, lack of direct third-party coverage for MLP services has

Box 10-B—Provider Profiles: Midlevel Practitioners

Nurse Practitioners (NPs)

The NP profession developed during the 1960s in response to concerns over a shortage of physicians (*617*). NPs are registered nurses who have completed advanced training programs in primary health care delivery. These programs grant either certificates or master's degrees and involve from 9 months to 2 years of full-time study. Functions performed by NPs include health assessment, physical examinations, management of minor acute and chronic illnesses, development of plans of care, patient education and counseling, health promotion and disease prevention activities, and coordination of health care services. In some States they have the authority to prescribe medication. NPs can manage patients independently of physicians, but they do so within the context of a system that allows for professional consultation, collaborative management, and, when appropriate, referral (*617*).

Physician Assistants (PAs)

The PA profession also developed during the 1960s in response to concerns over a shortage of physicians (*617,671*). PAs work with or under the supervision of physicians, providing diagnostic and therapeutic patient care. They take patient histories, perform physical examinations and basic diagnostic tests, develop treatment plans, counsel patients on preventive health behavior, and facilitate referrals to other health or social service facilities (*671*). In some States, they have the authority to prescribe certain medications (*192*). PA training programs provide an average of 50 weeks education in the basic medical sciences and another 52 weeks in various clinical disciplines, including approximately 34 weeks of supervised primary care clinical experience and approximately 19 weeks in the nonprimary care specialties. Most PA programs grant either bachelor's or associate degrees, depending on the program structure and the educational background of the student (*192*). A small but increasing number of PA programs are now granting master's degrees ((*673*). While NPs and CNMs perform both nursing and primary medical care tasks, PAs perform medical tasks exclusively (*192*).

Certified Nurse-Midwives (CNMs)

Trained nurse-midwives were introduced into the United States with the establishment of the Frontier Nursing Service in rural Kentucky in 1925. The first formal training program opened in 1931 (*24*). A CNM is educated in the two disciplines of nursing and midwifery. CNMs provide gynecological care, family planning, and prenatal care. They also deliver babies, co-manage high-risk pregnancies with physicians, and care for mothers and infants after pregnancy (*24,617*). Programs preparing CNMs offer either certificates or master's degrees (*24*). Like NPs, CNMs can practice independently of physicians, but only within a context that provides for consultation, collaborative management, and referral (*24*).

Certified Registered Nurse Anesthetists (CRNAs)

CRNAs are baccalaureate-prepared registered nurses who have completed an additional 24 to 36 months training in anesthesiology in an accredited program and have passed a national certification examination in the specialty (*522*). CRNAs substitute for anesthesiologists across States and across a wide range of procedures. Licensure and certification laws require that CRNAs work under physician supervision, but direct supervision by an anesthesiologist is generally not required (*522*).

resulted in these practitioners' not being used to their fullest potential (*617*).

This section examines the supply and geographic distribution of each type of MLP. Also included are supply and distributional data for certified registered nurse anesthetists (CRNAs), who often substitute for anesthesiologists in rural facilities (see box 10-B). Studies comparing anesthesia outcomes by provider type have found no significant differences between CRNA and MD anesthesiologist-administered services (*75,200,211*).

Nurse Practitioners

National Supply

In 1988, there were in the United States an estimated 56,043 RNs who had completed formal training as NPs (*511*). Only 20,649 RNs, however, were employed with the *position title* of nurse practitioner, including 2,318 who had *not* completed formal training (*511*). NPs are employed primarily in ambulatory care settings (about 33 percent) and community and public health settings (about 30 percent) (*673*). Another 27 percent are in hospitals (*673*).[34]

The future supply of NPs is influenced by the availability of eligible applicants as well as by the availability of slots in training programs. Most programs preparing NPs today are master's level (86 percent of federally funded programs in 1986), in contrast to 1973 when most programs were at the certificate level (*671*). Many NP training programs require a baccalaureate degree in nursing. This may affect the ability of rural RNs, who are less likely to have a baccalaureate degree (*317*), to obtain advanced degrees. In 1984, there were 208 NP training programs in the United States, and almost one-half (91) received some degree of Federal support (*671*). Anecdotal reports suggest that there are roughly four jobs available for every new NP graduate (*603*). The geographic distribution of NPs is directly related to the geographic distribution of NP training programs (*586*).

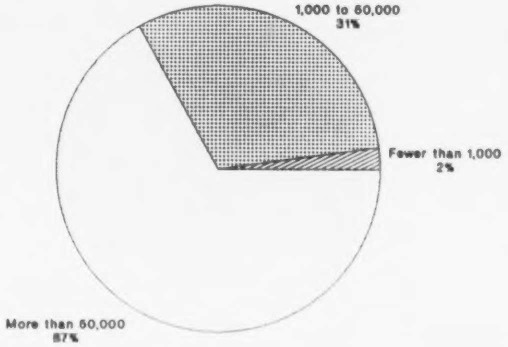
Rural Supply

The proportion of NPs in rural areas decreased slightly between 1984 and 1988. Of the 20,649 RNs employed as NPs in 1988, 15.8 percent were in rural areas (*511*). In 1984, approximately 18 percent were in rural areas (*671*).[35] Preliminary data from the American Academy of Nurse Practitioners' (AANPs') 1988 National Nurse Practitioner Survey indicate that 30 percent of all NPs are practicing in communities of 1,000 to 50,000 residents, and 2 percent are practicing in communities of fewer than 1,000 residents (figure 10-3) (*13*).[36]

Some State data on the rural-urban distribution of NPs are available. For example:

- *In Texas*, in 1986, approximately 12 percent of the State's 1,046 board-approved NPs were practicing in rural counties (*708*).
- *In Arizona*, in 1987, the NP-to-100,000 population ratio was 12 in rural counties as compared with 15 in urban counties.[37] Among Arizona's 13 rural counties, NP-to-100,000 population ratios ranged from 0 to 26 (*220*).

Figure 10-3—Distribution of Nurse Practitioners by Community Size, 1988[a]



[a]Community size does not reflect metro/nonmetro status. Data based on 5,987 responses to a national random sample survey of nurse practitioners. Excludes 210 respondents who did not indicate the size of their community.

SOURCE: Office of Technology Assessment, 1990. Data from American Academy of Nurses Practitioners, Lowell, MA, unpublished data from the 1988 National Nurse Practitioner Survey.

- *In Georgia*, in 1983, 32 percent of NPs were working in rural areas (*535*).
- *In Utah*, in 1986, slightly more than 10 percent of the State's 252 licensed NPs were practicing in rural counties (*158*).

In the 1960s, many NPs practiced independently in rural satellite clinics under supervision of physicians in neighboring communities, but this mode of NP practice has become less common as demand for NPs in a variety of other nonrural settings has grown (*617*). Table 10-29 examines selected characteristics of NPs practicing in communities of fewer than 1,000 residents, communities of 1,000 to 50,000 residents, and communities of 50,000 or more residents (*13*).[38] Compared with NPs in the largest communities, NPs in smaller communities are more likely to specialize in family health and to have hospital and nursing home privileges. NPs in the smallest communities are most likely to be employed in freestanding primary care clinics; NPs in communities of 1,000 to 50,000 residents are found mostly in private practices or in public health clinics;

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[34] Data on employment *setting* include approximately 2,900 RNs employed with the position title of nurse-midwife (*673*).

[35] Because 1984 distributional data included RNs employed with the position title of nurse-midwife, 1984 and 1988 data are not entirely comparable. However, nurse-midwives were only a small proportion (12 percent) of RNs employed as nurse-midwives or NPs in 1984.

[36] Community size does not reflect urban or rural status. Smaller communities may be in urban areas, and larger communities may be in rural areas.

[37] These ratios are based on the total 488 board-certified NPs residing in Arizona in 1987 and may be overestimates of actual supply since the activity status of these NPs was not examined.

[38] See footnote 36.

Table 10-29—Characteristics of Practicing Nurses Practitioners (NPs) by Community Population Size, 1988[a]

	Community population[a]		
	Fewer than 1,000 residents [N = 1,22]	1,000 to 50,000 residents [N = 1,771]	More than 50,000 residents [N = 3,884]
	Percent of NPs:		
Specialty:			
Family health	59.8	32.8	20.1
Adult health	3.3	10.8	17.4
Pediatric health	12.3	18.8	18.1
Gerontologic health	3.3	1.9	3.3
School/college health	2.5	4.4	4.3
Women's health	5.7	19.3	18.0
Psychiatric/mental health	0.0	1.9	2.9
Other	13.1	10.1	15.9
Total	100.0	100.0	100.0
Education:			
Masters degree or greater	33.8	33.2	52.4
Other	66.2	66.8	47.6
Total	100.0	100.0	100.0
Employment setting:			
Private practice (with & without a physician)	9.2	20.8	14.5
HMO	0.8	3.0	10.4
Freestanding primary care clinic	47.5	16.8	11.7
Hospital outpatient clinic	3.3	4.5	13.7
Public health clinic	7.5	18.1	7.9
Hospital inpatient unit	2.5	6.5	8.6
Extended care facility	2.5	1.5	1.7
School/college	5.0	11.7	11.7
Occupational health	2.5	2.9	2.8
Other	18.3	13.6	16.2
Total	100.0	100.0	100.0
Other characteristics:			
Percent of NPs having hospital privileges	27.5	26.1	26.0
Percent of NPs having nursing home privileges	9.8	8.6	3.9
Percent of NPs caring for patients over age 65	76.9	56.4	50.1

[a] Community population size was self-reported and self-defined. It does not reflect metro or nonmetro location.

SOURCE: American Academy of Nurse Practitioners, Lowell, MA, unpublished data from the 1988 Nurse Practitioner Survey.

and NPs in the largest communities are more likely to be found in private practices or hospital outpatient clinics. Approximately one-third of NPs in the smaller communities have a master's or doctoral degree, compared with over one-half of those in the largest communities (*13*).

Physician Assistants

National Supply

In 1987, there were an estimated 19,446 PAs licensed to practice in the United States, an increase of 15 percent over only 2 years earlier (*671*). Approximately 80 percent of these PAs were involved in patient care (*671*). The distribution of PAs by State is closely linked to the presence of PA training programs (table 10-30) (*62,671*). Dramatic differences in estimated PA population exist among States, ranging from 2,508 PAs in California to only 35 in Delaware. The East South Central had the lowest regional PA population (648 PAs) in 1987, while the Middle Atlantic had the highest (3,793 PAs) (*62,671*). PA distribution may also be influenced by State laws and regulations regarding PAs' scope of practice. In some States, PAs are required

Table 10-30—Number of Physician Assistants (PAs), 1987, and Number of PA Training Programs, 1989, by Region and State

	Number of PA training programs, 1989[a]	Estimated number of PAs, 1987[b]
United States	51	19,446
Northeast	14	5,082
New England	2	1,289
Connecticut	1	408
Maine	0	192
Massachusetts	1	455
New Hampshire	0	105
Rhode Island	0	69
Vermont	0	60
Middle Atlantic	12	3,793
New Jersey	1	232
New York	7	2,465
Pennsylvania	4	1,096
Midwest	13	3,367
East North Central	7	2,129
Illinois	1	229
Indiana	0	147
Michigan	2	700
Ohio	3	698
Wisconsin	1	355
West North Central	6	1,238
Iowa	2	236
Kansas	1	228
Minnesota	0	177
Missouri	1	178
Nebraska	1	175
North Dakota	1	127
South Dakota	0	117
South	17	6,234
South Atlantic	9	4,062
Delaware	0	35
District of Columbia	2	106
Florida	1	846
Georgia	2	666
Maryland	1	751
North Carolina	2	905
South Carolina	0	202
Virginia	0	348
West Virginia	1	203
East South Central	3	648
Alabama	1	169
Kentucky	1	209
Mississippi	0	32
Tennessee	1	238
West South Central	5	1,524
Arkansas	0	48
Louisiana	0	105
Oklahoma	1	335
Texas	4	1,036
West	7	4,640
Mountain	2	1,255
Arizona	0	277
Colorado	1	392
Idaho	0	54
Montana	0	41
Nevada	0	82
New Mexico	0	247
Utah	1	120
Wyoming	0	42
Pacific	5	3,385
Alaska	0	169
California	4	2,508
Hawaii	0	70
Oregon	0	146
Washington	1	492

[a] Programs must be accredited in order to graduate PAs. As of November 1989, four additional PA training programs were awaiting accreditation.

[b] Includes PAs not involved in patient care.

SOURCES: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Sixth Report to The President & Congress on The Status of Health Personnel in The United States, DHHS Pub. No. HRS-P-OD-88-1 (Rockville, MD: HRSA, June 1988), table 4-3; Association of Physician Assistant Programs, Physician Assistant Programs National Directory 1989-90 (Alexandria, VA: APAP, 1989).

to practice under the direct personal supervision of a physician (*16*) (see ch. 12).

The percentage of PAs in primary care practice is large but decreasing. In 1986, only 65 percent of all PAs were in family practice, compared with 74 percent in 1978 (table 10-31) (*671*). Conversely, the percentage of PAs in the medical and surgical subspecialties has increased significantly (*671*). This trend parallels that in the physician population, possibly because of the close relationship between PA and physician practice.

Pronounced changes in the distribution of PAs by practice setting have also been occurring. From 1981 to 1984, the proportion of patient care PAs in solo office-based practice decreased from 18 to 15 percent, while the proportion of PAs practicing in hospitals, HMOs, office-based group practice, and prisons increased (*671*). The increase in hospital-based PAs is likely to be further influenced by the recent broadening in 1986 (Public Law 99-509) of Medicare reimbursement policies for PA services provided in hospitals, skilled nursing facilities, and intermediate care facilities. According to the American Academy of Physician Assistants (AAPA) and

Table 10-31—Distribution of Physician Assistants by Specialty, 1978 and 1986[a]

Specialty	1978 (N=3,416)	1986 (N=8,330)
Primary care specialties	74.2%	65.1%
Family practice	52.0	37.3
General internal medicine	12.0	13.5
Emergency medicine	4.9	4.3
General pediatrics	3.3	5.8
Obstetrics/gynecology	2.0	4.2
Medical subspecialties	6.3	5.4
Surgical specialties	11.7	19.2
Other specialties	7.8	10.3[b]
Total[c]	100.0	100.0

[a] Data are based on two national sample surveys of PAs.

[b] Includes 1.9 percent industrial medicine and 1.3 percent psychiatry.

[c] Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Health & Human Services, Health Resources and Services Administration, Bureau of Health Professions, Sixth Report to the President & Congress on the Status of Health Personnel in the United States, DHHS Pub. No. HRS-P-OD-88-1 (Rockville, MD: HRSA, June 1988), table 4-6.

others, there has recently been an increased demand for PAs to fill hospital surgical resident house staff positions, where they are believed to improve quality of care as well as to help minimize costs (*470,671*). A threefold increase in the demand for PAs in Federal prisons is anticipated as the size and number of prisons expand (*192*). Increased demand for PAs in these settings, along with the trend away from primary care specialty practice, is likely to have a significant impact on the future supply of PAs in rural areas.

Approximately 1,200 new graduates are added annually to the PA pool, and approximately 90 percent of these enter active clinical practice (*671*). The BHPr projects that the total number of PAs could more than double by the year 2020 (*671*). Nonetheless, PA programs reported an average of more than seven available jobs per graduate for the 1988 class (*18*).[39]

Rural Supply

Little is known about the rural supply of PAs. PAs are slightly more likely (39 percent—figure 10-4) to practice in communities with fewer than 50,000 residents than are NPs (32 percent—figure 10-3) (*13,17*). Recent evidence suggests that the proportion of PAs practicing in very small communities has decreased and will continue to do so. In 1981, 27 percent of all professionally active PAs were practicing in communities of fewer than 10,000 residents (*671*). In 1989, only 20 percent were practicing in communities of this size; an additional 19 percent were in communities of 10,000 to 49,999 residents, and the remainder (61 percent) were in larger communities (figure 10-4) (*17*).[40] The 36 PA training programs that received Federal funds in 1986 reported that approximately one-third of their graduates were practicing in primary care HMSAs (*671*), with recent data indicating a trend toward PAs practicing in the urban as opposed to the rural shortage areas (*721*).

Data from selected States indicate a substantial proportion of PAs in rural practice.

- *In Arizona*, in 1987, approximately 30 percent of the State's licensed PAs were located in rural counties, making their PA-to-population ratio higher than that of urban counties (8 *v.* 6 per 100,000 residents) (*220*).
- *In Texas*, in 1986, 66 percent of the State's 412 PAs were practicing in rural counties (*708*).
- *In Utah*, in 1986, 37 percent of the 75 PAs were practicing in rural counties (*158*).
- *In Oklahoma*, in 1987, the distribution of PAs showed a somewhat different pattern. Twenty-eight percent of all PAs were located in rural counties, but the PA-to-100,000 population ratio was almost twice as high in urban counties (7.4) as in rural counties (4.0) (*451*).

Table 10-32 describes selected characteristics of PAs by size of community in 1989. The specialty distribution of PAs differed greatly by community size, with PAs in small communities (fewer than 10,000 residents) and small cities (10,000-250,000 residents) employed mostly in family practice, and

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[39] Based on a survey of PA program directors conducted in February 1988. Directors were asked: 1) of how many PA job positions they had been made aware over the past 12 months and 2) how many new PA graduates they had in 1988. From these data, AAPA calculated for each program the ratio of available positions to PA graduates. The unweighted average of all ratios was 7.5:1. All programs reported a ratio equal to or greater than 2:1. When asked the subjective question, "Do you feel there is a shortage of PAs?," all programs responded "yes" (*18,192*).

[40] See footnote 36. Communities with fewer than 50,000 residents may be in either rural or urban areas.

Table 10-32—Characteristics of Practicing Physician Assistants by Community Population Size, 1989[a]

	Community population[b]		
	Fewer than 10,000 residents	10,000 to 250,000 residents	More than 250,000 residents
	Percent of PAs:[b]		
Primary specialty:			
Family/general practice	67	36	24
Emergency medicine	8	6	5
Internal medicine	5	9	11
General pediatrics	3	4	3
Orthopedics	3	7	6
Industrial/occupational medicine	2	3	5
Geriatrics	2	1	3
General surgery	2	5	6
Obstetrics/gynecology	1	5	6
Other	8	24	31
Total[c]	100	100	100
Practice Setting:			
Group office	17	27	19
Solo office	20	13	9
Nursing home	1	1	2
Public hospital	7	13	12
Private hospital	4	10	17
Public clinic	4	6	6
Private clinic	7	9	9
Rural clinic	21	1	*
Inner city clinic	0	1	4
Other clinic	14	12	7
HMO	1	7	14
Prison/jail	4	2	1
Other nonclinic	1	1	1
Total[c]	100	100	100
Number of years in current practice setting:			
Less than 1 year	19	24	23
1 to 3 years	26	30	37
4 to 6 years	21	18	21
7 to 9 years	15	12	13
10 years or more	20	15	7
Unknown	0	*	0
Total[c]	100	100	100
Academic Degree:			
Certificate	14	9	4
Bachelor's	66	68	74
Master's	7	12	13
Associate	14	10	8
Doctorate	0	1	1
None stated	1	0	*
Total[c]	100	100	100
Sex:			
Male	71	63	55
Female	29	37	45
Total[c]	100	100	100
Average Age (in years)	40.7	38.5	37.4

NOTE: * = less than 0.5 percent of total.

[a] This information is derived from the American Academy of Physician Assistants' 1989 Prescriptive Practice Survey and is statistically representative of member and nonmember physician assistants in communities of all sizes.

[b] Community population size was self-reported and self-defined. It does not reflect metro or nonmetro location.

[c] Percentages may not add to 100 due to rounding.

SOURCE: American Academy of Physician Assistants, Alexandria, VA, unpublished data from the 1989 PA Prescriptive Practice Survey provided to OTA in 1989.

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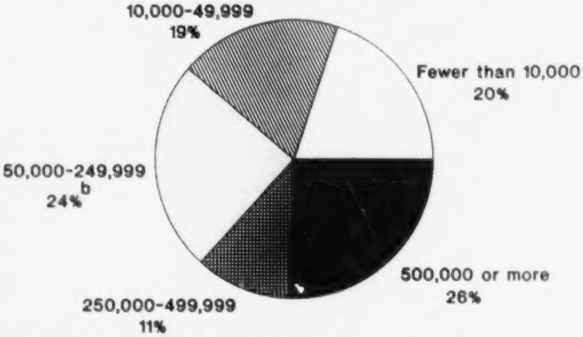
Figure 10-4—Distribution of Physician Assistants by Community Size, 1989[a]



[a]Represents location of PAs' major practice setting. Based on 1,588 responses to a 1989 sample survey of PAs. Community size was self-defined and self-reported, and does not reflect metro/nonmetro location.

[b]The actual percentage (24.62) was rounded to 24 percent for the purpose of this figure.

SOURCE: Office of Technology Assessment, 1990. Data from American Academy of Physician Assistants, Alexandria, VA, unpublished data from the 1989 PA Prescriptive Practice Survey.

PAs in large cities (more than 250,000 residents) employed mostly in other medical and surgical subspecialties (*17*). More small community and small city PAs than large city PAs were in solo practice settings, and fewer were in group practice, hospital, and HMO settings. PAs in small communities were considerably older, were more likely to be male, had lower salaries, and tended to have been in their current employment setting much longer than PAs in small and large cities. Small community PAs were also less likely than PAs in small and large cities to have at least a bachelor's degree (*17*).

Certified Nurse-Midwives

National Supply

As of January 1990, 4,260 nurse-midwives had been certified by the American College of Nurse-Midwives (ACNM) (*27*), a 67 percent increase over the number in 1982 (2,550) (*23a*).[41] Seventy-one percent of all CNMs responding to a 1988 ACNM survey were practicing nurse-midwifery (*342*). The Division of Nursing estimates that there were some 2,886 practicing nurse-midwives in the United States in 1988, but it does not distinguish between those who were certified by the ACNM and those who were not (*681*). Almost one-fourth of CNMs responding to the 1988 ACNM survey were employed by hospitals (*342*). Seventeen percent were employed by physicians, and 9 percent were employed by other CNMs or were in private practice (*342*). Twenty-five nurse-midwifery education programs were in operation in the United States at the end of 1987 (*24*).

Studies have shown that CNMs can manage normal pregnancies at least as well as physicians (*169,359,502,504,565*). Numerous factors, including lack of physician acceptance, liability coverage costs and availability, and reimbursement coverage, have influenced the characteristics and location of CNM practice.

Rural Supply

Although no information regarding the national rural/urban distribution of CNMs is available, survey data show that the proportion of CNMs in smaller communities has decreased in recent years. The proportion of active CNMs practicing in communities of fewer than 50,000 residents decreased by over 10 percentage points in both small (fewer than 10,000 residents) and mid-sized (10,000 to 49,999 residents) communities between 1982 and 1987 (table 10-33) (*23a,26*).[42]

State data indicate that the distribution and activity of CNMs vary considerably between rural and urban areas.

- *In Arizona*, in 1987, although only one-half of CNMs in urban counties were practicing midwifery, all of the 21 CNMs in rural counties were delivering babies. CNMs attended 4 percent of all deliveries in Arizona in 1985, and in some rural counties they delivered more than 50 percent of the total county births (*220*).[43]
- *In Texas*, in 1986, 22 percent of the 79 CNMs practicing nurse-midwifery were practicing in rural counties (*708*).
- *In Utah*, in 1986, only 1 of the 42 known employed CNMs was practicing in a rural county. Only one rural hospital in Utah granted delivery privileges to nurse-midwives in 1987,

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[41] Data on the geographic distribution and characteristics of CNMs were available for 1982, 1987, and 1988, based on surveys conducted by the ACNM. The ACNM is the only national certifying body for nurse-midwives.

[42] See footnote 36.

[43] Most CNMs delivering babies in rural Arizona counties work on Indian reservations and are employed by the Indian Health Service (*221*).

Table 10-33—Distribution of Practicing Certified Nurse-Midwives (CNMs) by Community Population Size, 1982 and 1987[a] [b]

Community population[c]	1982 (N=1,065)	1987 (N=1,526)
Fewer than 10,000	8.7%	7.9%
10,000 to 49,999	14.5	13.7
50,000 to 199,999	17.4	20.0
200,000 to 499,999	13.2	10.6
500,000 or more	40.6	39.0
Total[d]	100.0	100.0

[a] Represents community population size of CNMs' primary work site.

[b] Data are based on the 1982 and 1987 American College of Nurse-Midwives (ACNM) Surveys and only reflect characteristics of nurse-midwives who are certified according to the requirements of the ACNM. Data for 1982 are based on responses from 1,684 CNMs (66% of all CNMs in 1982). Data for 1987 are based on responses from 2,278 CNMs (57% of all CNMs in 1987). CNMs who were residing outside of the United States, were not practicing nurse-midwifery, or did not indicate the size of their primary worksite are excluded.

[c] Does not reflect metro or nometro location.

[d] Percentages may not add to 100 due to rounding.

SOURCE: American College of Nurse-Midwives, Nurse-Midwifery in the United States: 1982 (Washington, DC: ACNM, 1984); American College of Nurse-Midwives, Washington, DC, unpublished data from the 1987 five-year survey provided to OTA in 1990.

Table 10-34—Number of Nurse Anesthetist Training Programs and Graduates, 1976-90

Year	Total number of graduates	Total number of programs
1976	1,094	194
1977	1,029	166
1978	1,063	172
1979	1,078	163
1980	1,023	161
1981	1,055	148
1982	1,107	142
1983	985	137
1984	953	127
1985	722	112
1986	722	104
1987	720	99
1988	574	84
1989	636	80
1990	693[a]	80[b]

[a] Projected.

[b] Number of programs as of Apr. 1, 1990.

SOURCE: American Association of Nurse Anesthetists, Chicago, IL, unpublished data provided to OTA in April 1990.

and CNMs in the State do not participate in home deliveries (*158*).

Certified Registered Nurse Anesthetists (CRNAs)

In 1986, there were 22,500 CRNAs and 19,000 anesthesiologists in the United States, but the number of anesthesiologists has increased much more quickly than that of CRNAs over the past two decades (116 *v.* 68 percent) (*522*).[44] The number of graduates from nurse anesthetist training programs dropped by a precipitous 44 percent from 1980 to 1988, due to a 48 percent reduction in the number of nurse anesthetist training programs (table 10-34) (*22*). Reasons for program closure may include withdrawal of anesthesiologist support and concerns within hospitals over program costs (*522*). The number of graduates has increased since 1988, reaching a projected 693 in 1990, but it is still far below the peak level of 1982 (table 10-34) (*22*).

The distribution of CRNAs and anesthesiologists by State is shown in table 10-35, which ranks the States by their CRNA-to-population ratio. The seven States with average rates at or above the national median for both providers all have both large anesthesiology residency programs and nurse anesthetist training programs (*522*). The eight States with rates below the national median for both providers all have large rural areas and below-average hospital bed-to-population ratios (*522*).

Hospitals that lack the services of MD anesthesiologists may rely on CRNAs as the sole providers of anesthesia during surgical procedures. CRNAs administer nearly 70 percent of all anesthetics given in the United States (*122*).[45] In 1982, 34 percent of

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[44] These figures represent the number of members in the American Association of Nurse Anesthetists and in the American Society of Anesthesiologists, but they exclude nurse anesthesia students and anesthesiology residents (*522*).

[45] According to an anesthesia practice survey conducted by the Center for Health Economics Research (*122*), 19 percent of anesthesia services nationwide are provided by CRNAs alone, 48 percent by anesthesiologists and CRNAs together, and 33 percent by anesthesiologists alone. When anesthesiologists and CRNAs work together, it is usually the CRNA who actually administers the anesthesia (*601*).

[46] Excluded from this analysis were hospitals in the U.S. territories, long-term care and Federal hospitals, specialty hospitals not meeting the Health Care Financing Administration's definition of community hospital, and hospitals not providing surgical services.

Table 10-35—Supply of Certified Registered Nurse Anesthetists (CRNAs) and MD Anesthesiologists by State, 1986, Ranked by CRNAs and MD Anesthesiologists Per 100,000 Residents

	CRNAs			Anesthesiologists			Anesthesia providers (CRNAs plus MD anesthesiologists) per 100,000 residents
State	Number[a]	Per 100,000 residents[b]	Rank[c]	Number[d]	Per 100,000 residents[b]	Rank[e]	
Alabama..........	562	14.0	7	175	4.4	46	18.4
Alaska...........	34	6.5	41.5	21	4.0	48	10.5
Arizona..........	140	4.4	47	263	8.3	7	12.7
Arkansas.........	243	10.3	16	105	4.5	44	14.8
California.......	957	3.6	50	2,025	7.7	10	11.3
Colorado.........	181	5.6	44	233	7.2	12.5	12.8
Connecticut......	287	9.0	24	280	8.8	5	17.8
Delaware.........	78	12.5	11	[illegible]7	5.9	30.5	18.4
District of Columbia.......	61	9.7	21	48	7.7	10	17.4
Florida..........	860	7.6	33	822	7.2	12.5	14.8
Georgia..........	546	9.1	23	367	6.1	27	15.2
Hawaii...........	104	9.9	19	61	5.8	32.5	15.7
Idaho............	99	9.9	19	31	3.1	50	13.0
Illinois.........	810	7.0	39	709	6.1	27	13.1
Indiana..........	119	2.2	51	374	6.8	17	9.0
Iowa.............	208	7.2	36	160	5.5	34.5	12.7
Kansas...........	326	13.3	9	126	5.1	39	18.4
Kentucky.........	301	8.1	29.5	199	5.3	36.5	13.4
Louisiana........	723	16.1	4	216	4.8	42	20.9
Maine............	125	10.7	15	69	5.9	30.5	16.6
Maryland.........	310	7.1	37.5	404	9.2	2.5	16.3
Massachusetts....	456	7.8	31	582	10.0	1	17.8
Michigan.........	992	10.9	14	502	5.5	34.5	16.4
Minnesota........	774	18.5	3	267	6.4	21	24.9
Mississippi......	263	10.1	17	87	3.3	49	13.4
Missouri.........	611	12.1	12	291	5.8	32.5	17.9
Montana..........	59	7.1	37.5	51	6.2	24	13.3
Nebraska.........	193	12.0	13	83	5.2	38	17.2
Nevada...........	38	4.1	49	81	8.7	6	12.8
New Hampshire....	84	8.4	27	53	5.3	36.5	13.7
New Jersey.......	347	4.6	45	511	6.8	17	11.4
New Mexico.......	117	8.1	29.5	87	6.0	29	14.1
New York.........	800	4.5	46	1,461	8.2	8	12.7
North Carolina...	863	13.8	8	283	4.5	44	18.3
North Dakota.....	129	18.8	2	31	4.5	44	23.3
Ohio.............	946	8.8	25	765	7.1	14	15.9
Oklahoma.........	244	7.4	34	164	5.0	40	12.4
Oregon...........	168	6.3	43	208	7.7	10	14.0
Pennsylvania.....	1,772	14.9	5	824	7.0	15	21.9
Rhode Island.....	81	8.4	27	60	6.2	24	14.6
South Carolina...	333	9.9	19	140	4.2	47	14.1
South Dakota.....	141	19.9	1	19	2.7	51	22.6
Tennessee........	625	13.1	10	309	6.5	19.5	19.6
Texas............	1,382	8.4	27	1,065	6.5	19.5	14.9
Utah.............	71	4.3	48	152	9.2	2.5	13.5
Vermont..........	41	7.7	32	33	6.2	24	13.9
Virginia.........	525	9.2	22	358	6.3	22	15.5
Washington.......	286	6.5	41.5	394	8.9	4	15.4
West Virginia....	279	14.4	6	95	4.9	41	19.3
Wisconsin........	350	7.3	35	326	6.8	17	14.1
Wyoming..........	34	6.7	40	31	6.1	27	12.8
U.S. total...................		8.4			6.1		14.5

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[a] Active members in the American Association of Nurse Anesthetists, as of August 1986.

[b] Based on 1985 population.

[c] Ranked by CRNAs per capita.

[d] Active members in the American Society of Anesthesiologists, as of Dec. 31, 1986.

[e] Ranked by MD anesthesiologists per capita.

SOURCE: Adapted from M.L. Rosenbach and J. Cromwell, "A Profile of Anesthesia Practice Patterns," Health Affairs, vol. 7, No. 4, Fall 1988, pp. 118-131, exhibit 3.

Box 10-C—Provider Profiles: Nurses

Registered Nurses (RNs)

Although all RNs take the same licensure examination, basic nursing education is provided in a number of different settings (*673*). Programs vary in length and type of degree provided. Diploma programs, usually located in hospitals, are typically 3 years in length. Associate degree programs, typically located in community colleges, are generally 2 years long. Bachelor's degree programs are located in colleges and universities and require a total of 4 years of undergraduate education for degree completion. In recent years, there has been a trend away from the diploma and toward the bachelor's degree or associate degree as the route of entry into the RN work force. Associate degree programs are still producing the majority of RNs (*673*). Many advanced nursing degree programs, such as those preparing NPs, CNMs, and CRNAs, require a previous bachelor's degree (*673*), and some States have initiated plans to require a bachelor's degree for RN professional practice (*671*). The total employed RN population includes RNs with advanced training (e.g., NPs, CNMs, CRNAs, clinical nurse specialists) who are either in clinical practice or are employed in research, teaching, or administration (*673*).

Licensed Practical/Vocational Nurses (LP/VNs)

LP/VNs must complete a training program in practical nursing (typically 12 months long) before taking a national licensure examination (*671*). In California and Texas, the licensing laws refer to vocational nurses rather than practical nurses (*671*). LP/VNs are not considered professional nurses because their skills and training are not equivalent to those of RNs (*69*). LP/VNs are responsible to RN supervisors under State nurse practice acts (*69*).

hospitals[46] relied solely on CRNAs for anesthesia service provision (*123*);[47] 85 percent of these hospitals were located in rural areas (*123*). In isolated areas, a single CRNA may provide services in as many as four hospitals (*699*).

The high proportion of rural anesthesia services provided by CRNAs suggests a concentration of these professionals in rural areas, but recent decreases in the number of programs and graduates may disproportionately affect rural areas. A survey of rural and urban hospitals in Texas found that the vacancy rate for CRNAs was 10 percent in rural hospitals, compared with 2 percent in urban hospitals (*595*).

NURSES

The U.S. health care system employs over 3 million nursing personnel at a wide range of professional levels and in a wide range of settings (*671*). Reports from nurse employers suggest a recent serious national shortage of nurses (*698*). The nature and extent of this shortage have been the subject of numerous studies at the national, State, and local levels. These studies have focused primarily on registered nurses (RNs) employed in hospitals. The impact of the national nursing shortage in rural areas is difficult to determine due to the limitations of these studies and their data sources, but available data suggest that rural areas are suffering at least as much as urban areas. Smaller rural facilities are more sensitive to the loss of a single nurse, because such a loss can critically affect their ability to deliver health services.

This section describes the national and rural supply of registered nurses (RNs) and licensed practical/vocational nurses (LP/VNs) (see box 10-C).

National Supply[48]

Current Supply

As of March 1988, there were just over 2 million RNs licensed to practice in the United States, representing an increase of approximately 45 percent over the 1977 RN population (figure 10-5) (*673*). From 1984 to 1988, however, total RN population increased by only 8 percent. The estimated total number of RNs *employed* in nursing in

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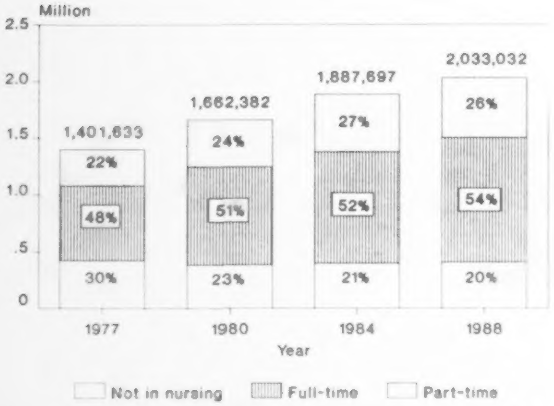
[47] Seventeen percent used anesthesiologists only, and 45 percent used both anesthesiologists and CRNAs. The remainder used other providers (e.g., RNs, other physician specialists).

[48] A substantial number of nurses (46 percent of RNs in 1988) are employed part-time (*673*). BHPr adjusted for the percentage of RNs employed part-time in 1988 to produce estimates of full-time equivalent (FTE) RN and LP/VN supply. In 1988, when the total employed RN supply was 1.63 million, the estimated FTE supply was only 83 percent of that, or 1.36 million (*673*). In 1983, FTE LP/VN supply was 87 percent of the estimated total number of LP/VNs (*671*). The percentage of both RNs and LP/VNs who are employed full-time varies somewhat by region and State (*671,673*).

Figure 10-5—Employment Status of Registered Nurses in the United States, Selected Years, 1977-1988



SOURCE: Office of Technology Assessment, 1990. Data from U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, *Seventh Report to the President and Congress on the Status of Health Personnel in the United States*, DHHS Pub. No. HRS-P-OD-90-1 (Rockville, MD: HRSA, June 1990), table VIII-2.

1988 was approximately 1.6 million, or roughly 80 percent of all licensed RNs (*673*). Both the proportion of licensed RNs who are practicing and the proportion employed full-time have increased in recent years (figure 10-5) (*673*). There were 668 employed RNs per 100,000 residents in the United States as a whole in 1988—a 19 percent increase over the 1980 ratio (table 10-36) (*404,673*). The number of RNs employed in hospital settings has increased dramatically in recent years (table 10-37) (*671,698*).

In 1983, the most recent year for which data are available, there were in the United States an estimated 781,506 LP/VNs, with 69 percent of these actually employed in practical nursing. Approximately 5 percent of all LP/VNs were also licensed to practice as RNs, and almost 12 percent of the LP/VNs who were not employed in practical nursing in 1983 were employed as RNs (*678*). The number of LP/VNs employed in hospitals decreased substantially between 1981 and 1988 (table 10-37) (*671,698*).

Considerable State and regional variations in estimated RN supply exist (figure 10-6, table 10-36) (*404,673*). In 1988, for example, New England had more than twice as many employed RNs per 100,000 residents as the West South Central region (table 10-36) (*673*). Ratios in the States ranged from a low of 442 in Louisiana to a high of 1,167 in Massachusetts. Employed-RN-to-population ratios increased in all States between 1980 and 1988, although the rate of increase varied considerably, and a few States experienced decreases during the latter part of that period. Regions with the lowest ratios experienced the highest rates of increase (table 10-36) (*404,673*).

Regional variations are less pronounced for LP/VNs (table 10-38). The national ratio of LP/VNs per 100,000 residents was 231 in 1983. The only regions with ratios well below this average were the Mountain (173) and Pacific (176) regions (*671*). Interestingly, the two regions with the lowest relative RN-to-population ratios in 1984 (East South Central and West South Central) (table 10-36) had high relative LP/VN-to-population ratios in 1983 (278 and 274, respectively) (*404,671*).

Over two-thirds of RNs employed in nursing (in 1988) and over one-half of employed LP/VNs (in 1983) worked in hospitals (table 10-39) (*671,681*). Other major employment settings for RNs were nursing homes, ambulatory care settings, and public health settings. Other major employment settings for LP/VNs were nursing homes and physicians' or dentists' offices. RN employment in ambulatory care settings (e.g., group practice physician offices, HMOs, freestanding clinics) increased by 29 percent from 1984 to 1988, but it changed little in public health settings (*673*).

Future Supply

The main cause for concern regarding future supply of nurses is the recent downward trend in enrollments in and graduations from nursing programs. Total enrollments in basic RN nursing education programs decreased in all but three years between academic years 1975-76 and 1987, then increased slightly in 1988 (*671,673*). In 1989-90, first-time student enrollments in 4-year RN programs increased by 6 percent over the previous year—the first increase in 5 years (*20*). Enrollments in practical nursing programs peaked in 1982-83, and they have since declined significantly (*671*).

The number of graduates from RN programs, after nearly a decade of increase, dropped significantly in 1985-86 and has continued to decline (table 10-40)

Table 10-36—Estimated Supply of Registered Nurses (RNs) Employed in Nursing by Region and State, 1980, 1984, and 1988[a]

	1980		1984		1988		Percent change in rate per 100,000 residents	
	Number of RNs	Rate per 100,000 residents	Number of RNs	Rate per 100,000 residents	Number of RNs	Rate per 100,000 residents	1980-84	1984-88
United States	1,272,851	560	1,485,725	629	1,627,035	668	12	6
Northeast								
New England	109,116	882	119,914	953	130,915	1,020	8	7
Connecticut	26,083	838	26,407	837	29,367	916	>-0.5	9
Maine	7,583	673	8,453	731	9,639	809	9	11
Massachusetts	57,052	993	63,540	1,096	68,255	1,167	10	6
New Hampshire	7,368	798	8,024	821	10,015	946	3	15
Rhode Island	7,025	740	8,851	920	9,149	933	24	1
Vermont	4,005	782	4,639	875	4,490	821	12	-6
Middle Atlantic	252,751	686	277,040	746	293,961	785	9	5
New Jersey	46,768	634	52,493	699	53,239	693	10	-1
New York	12,184	695	133,310	752	142,899	802	8	7
Pennsylvania	83,769	705	91,238	767	97,823	819	9	7
Midwest								
East North Central	231,557	555	277,280	667	295,202	705	20	6
Illinois	66,997	586	80,564	700	84,779	734	19	5
Indiana	25,379	462	32,240	586	35,527	642	27	10
Michigan	48,427	523	56,449	622	60,463	658	19	6
Ohio	61,841	573	75,676	704	80,095	743	23	6
Wisconsin	28,913	612	32,351	679	34,338	714	11	5
West North Central	111,206	646	125,639	717	135,464	768	11	7
Iowa	19,600	673	23,704	815	22,770	805	21	-1
Kansas	14,574	616	15,943	664	16,863	683	8	3
Minnesota	32,184	788	32,229	774	33,911	798	-2	3
Missouri	25,635	521	31,866	636	38,277	751	22	18
Nebraska	10,325	657	11,094	691	11,627	728	5	5
North Dakota	4,264	652	5,637	822	6,239	923	26	12
South Dakota	4,623	670	5,164	731	5,777	818	9	12
South								
South Atlantic	186,480	502	227,724	577	259,671	623	15	8
Delaware	3,832	643	4,423	722	5,661	885	12	23
District of Columbia	8,462	1,328	9,465	1,519	10,279	1,656	14	9
Florida	49,245	499	67,722	617	80,319	668	24	8
Georgia	24,756	452	29,365	503	33,860	545	11	8
Maryland	24,639	583	31,565	726	32,207	710	25	-2
North Carolina	27,536	468	32,460	527	37,568	586	13	11
South Carolina	12,537	401	13,761	417	15,180	444	4	6
Virginia	26,138	487	28,477	505	33,500	567	4	12
West Virginia	9,336	479	10,485	537	11,097	585	12	9

(continued on next page)

Table 10-36—Estimated Supply of Registered Nurses (RNs) Employed in Nursing by Region and State, 1980, 1984, and 1988[a]—Continued

	1980		1984		1988		Percent change in rate per 100,000 residents	
	Number of RNs	Rate per 100,000 residents	Number of RNs	Rate per 100,000 residents	Number of RNs	Rate per 100,000 residents	1980-84	1984-88
South (continued):								
East South Central	62,411	425	72,429	482	82,644	540	13	12
Alabama	16,026	411	19,750	495	22,113	541	20	9
Kentucky	16,972	463	16,799	451	19,495	523	-3	16
Mississippi	9,052	359	10,577	407	12,147	461	13	13
Tennessee	20,360	443	25,302	536	28,889	595	21	11
West South Central	87,476	366	113,518	435	125,470	466	19	7
Arkansas	8,405	366	10,258	437	11,292	473	19	8
Louisiana	14,556	345	17,372	389	19,685	442	13	14
Oklahoma	10,509	346	13,569	411	15,036	458	19	11
Texas	54,006	377	72,320	452	79,457	474	20	5
West								
Mountain	61,214	536	72,448	577	81,838	623	8	8
Arizona	16,685	611	19,015	623	23,191	685	2	10
Colorado	17,820	614	21,212	667	23,459	713	9	7
Idaho	4,062	429	5,039	503	4,963	501	17	<0.5
Montana	4,824	612	5,260	638	5,275	655	4	3
Nevada	3,950	489	4,849	532	6,367	636	9	20
New Mexico	5,478	420	7,255	509	7,489	500	21	-2
Utah	6,045	411	7,151	433	8,397	500	5	15
Wyoming	2,350	495	2,667	522	2,697	551	5	6
Pacific	170,672	535	199,734	584	221,869	607	9	4
Alaska	1,948	483	3,256	651	3,351	648	35	<0.5
California	122,176	514	141,834	554	159,808	575	8	4
Hawaii	4,763	492	6,462	622	5,923	545	26	-12
Oregon	17,208	652	18,081	676	20,466	753	4	11
Washington	24,576	592	30,100	692	33,121	729	17	5

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[a] Data for 1980 and 1984 as of November; data for 1988 as of March.

[b] Population data based on provisional estimates of resident population as of July 1, 1984 in the publication of U.S. Department of Commerce, Bureau of the Census, State Population Estimates, by Age and Components of Change: 1980 to 1984, Series P-25, No. 970, issued June 1985.

[c] Population data based on provisional estimates of resident population as of July 1, 1984 in the publication of U.S. Department of Commerce, Bureau of the Census, State Population and Household Estimates, with Age, Sex and Components of Change: 1981-1987, Series P-25, No. 1024, Issued May 1988.

SOURCES: E. B. Moses, The Registered Nurse Population: Findings from the National Sample Survey of Registered Nurses, November 1984, DHHS Pub. No. HRP-0906938 (Rockville, MD: HRSA, 1986); and U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Seventh Report to the President and Congress on the Status of Health Personnel in the United States, DHHS Pub. No. HRS-P-OD-90-1 (Rockville, MD: HRSA, June 1990), table VIII-A-3.

Table 10-37—Registered Nurse (RN) and Licensed Practical/Vocational Nurse (LP/VP) Supply in U.S. Community Hospitals,[a] 1981-88

	1981	1982	1983	1984	1985	1986	1987	1988
RNs:								
Total FTEs[b] (1,000s).......	629	672	698	698	709	736	759	771
FTEs per 100 patients[c].....	72.1	76.5	80.8	85.1	91.3	95.6	97.8	97.9
Vacancy rate...............	7.6	5.3	4.4	4.6	6.3	11.0	11.3	NA
LP/VNs:								
Total FTEs[b] (1,000s).......	234	238	230	205	187	174	170	171
FTEs per 100 patients[c].....	26.8	27.1	26.6	25.0	24.1	22.6	21.9	21.7
Vacancy rate...............	5.5	3.4	2.8	3.3	NA	NA	NA	NA

NOTE: NA = not available.

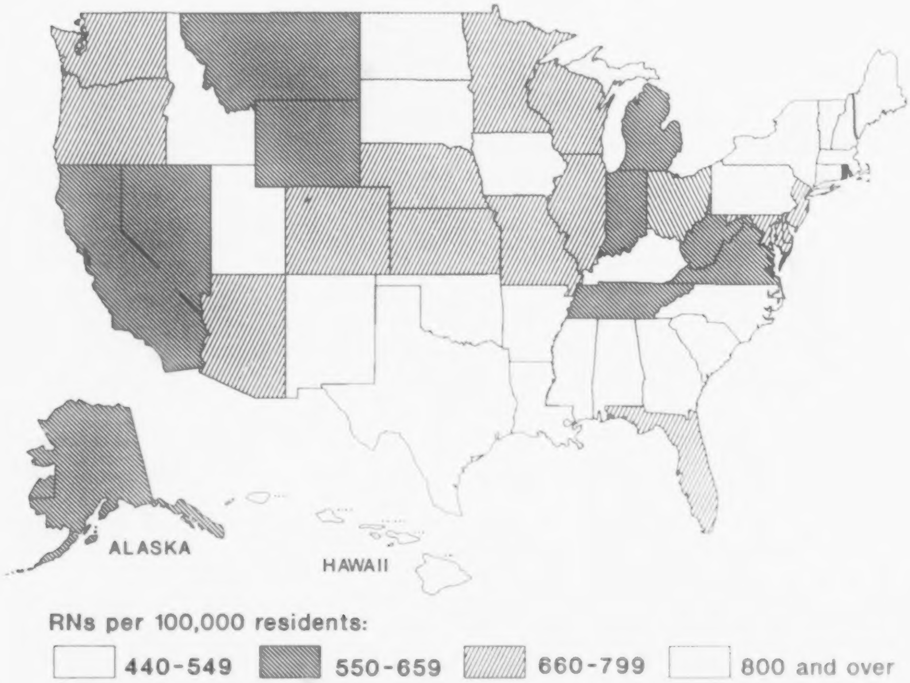
[a] As defined by the American Hospital Association.

[b] Full-time equivalent.

[c] Includes inpatients plus outpatient visits converted to inpatient equivalents.

SOURCE: American Hospital Association, Hospital Statistics, 1982-1990 eds. (Chicago, IL: AHA, 1982-1990); U.S. Department of Health and Human Services, Secretary's Commission on Nursing, Secretary's Commission on Nursing: Final Report, Volume I (Washington, DC: December 1988), figure 1; U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Sixth Report to the President and Congress on the Status of Health Personnel in the United States, DHHS Pub. No. HRS-P-OD-88-1 (Rockville, MD: HRSA, June 1988), table 10-12.

Figure 10-6—Employed Registered Nurses (RNs) Per 100,000 Residents in the United States by State, March 1988



SOURCE: Office of Technology Assessment, 1990. Based on data from U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, *Seventh Report to the President and Congress on the Status of Health Personnel in the United States*, DHHS Pub. No. HRS-P-OD-90-1 (Rockville, MD: HRSA, June 1990), figure VIII-6.

Table 10-38—Estimated Supply of Licensed Practical/Vocational Nurses (LP/VNs) by Region, 1983[a]

	Number	Rate per 100,000 residents
United States	539,463	231
New England	33,004	264
Middle Atlantic	82,885	224
South Atlantic	86,872	224
East South Central	41,598	278
West South Central	70,671	274
East North Central	94,979	229
West North Central	48,729	280
Mountain	21,386	173
Pacific	59,339	176

[a] Includes only nurses actually employed as LP/VNs.

SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Sixth Report to the President and Congress on the Status of Health Personnel in the United States, DHHS Pub. No. HRS-P-OD-88-1 (Rockville, MD: HRSA, June 1988), table 10-7.

(*421*).[49] Similarly, the number of graduates from LP/VN programs increased until 1984-85 but has since dramatically declined, dropping by almost 20,000 between 1984-85 and 1987-88 (table 10-40). While the number of programs preparing RNs has increased slightly in recent years, the number of LP/VN programs has decreased (table 10-40) (*421*)). BHPr projects a continuing decline in graduates from all basic nursing education programs through the year 2020 (*673*). Between 1990 and 2020, the total supply of employed RNs is projected to decrease by 2.6 percent (from 1,687,100 to 1,642,900), while the supply of employed RNs relative to population is projected to decrease by 17 percent (from 674 to 558 per 100,000 residents) (*673*). The total number of LP/VNs per 100,000 residents is projected to peak in 2004 and to subsequently experience a slow but steady decline (*671*).

The pool of potential nursing students also seems to be shrinking. An ongoing study of career interests of first-time freshmen college students conducted by the University of California (Los Angeles) shows a marked decrease in the numbers indicating an interest in nursing (*63*).

Table 10-39—Registered Nurses (RNs) Employed in Nursing, 1988, and Employed Licensed Practical/Vocational Nurses (LP/VNs), 1983, by Primary Employment Setting

Employment setting	Number	Percent
Estimated RNs employed in nursing, 1988		
Hospital	1,104,978	67.9
Nursing home/extended care facility	107,805	6.6
Nursing education	30,005	1.8
Community/public health	110,886	6.8
Student health service	47,792	2.9
Occupational health	21,857	1.3
Ambulatory care	125,813	7.7
Private duty nursing	19,988	1.2
Self-employed	13,203	0.8
Other	43,321	2.7
Unknown	1,386	0.1
Total[a]	1,627,035	100.0
Estimated LP/VNs employed as LP/VNs, 1983		
Hospital	310,842	57.6
Nursing home	121,398	22.5
Public/community health	13,574	2.5
Student health	4,200	0.8
Occupational health	6,056	1.1
Physicians or dentists office	48,969	9.1
Private duty	19,959	3.7
Other	6,237	1.2
Not known	8,229	1.5
Total[a]	539,465	100.0

[a] Percentages may not add to 100 due to rounding.

SOURCES: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Division of Nursing, Rockville, MD, unpublished data from the 1988 National Sample Survey of Registered Nurses provided to OTA in 1989; U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Sixth Report to the President and Congress on the Status of Health Personnel in the United States, DHHS Pub. No.HRS-P-OD-88-1 (Rockville, MD: HRSA, June 1988), table 10-11.

The 1980s Nursing Shortage—Although in the future there is likely to be a shortage of nurses due to lack of nursing graduates, the shortage of RNs in the 1980s was primarily due to an increase in demand (*698*). Demand factors included:

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[49] These figures include graduates of all RN programs. Recent data from the American Association of Colleges of Nursing (AACN) indicate that the number of first-time student graduates from 4-year programs (excluding students who were already RNs but were upgrading to a baccalaureate degree) continues to decrease—by 16 percent between 1987 and 1988, and by 11 percent between 1988 and 1989 (*19*). Enrollments in baccalaureate RN programs also continue to decrease, although more slowly during the past 2 years when compared with previous years (*20*).

Table 10-40—Number of Programs Preparing Registered Nurses (RNs) and Licensed Practical/Vocational Nurses (LP/VNs) and Number of Graduates: 1976-77 and 1981-82 through 1988-89

Year	Number of programs	Number of graduates
RNs:		
1976-77	1,358	77,755
1981-82	1,401	74,052
1982-83	1,432	77,408
1983-84	1,466	80,312
1984-85	1,477	82,075
1985-86	1,473	77,027
1986-87	1,469	70,561
1987-88	1,465	64,839
1988-89	1,442	NA
LP/VNs:		
1976-77	1,318	46,614
1981-82	1,309	43,299
1982-83	1,295	45,174
1983-84	1,297	44,654
1984-85	1,254	36,955
1985-86	1,165	29,599
1986-87	1,087	27,285
1987-88	1,068	26,912
1988-89	1,095	NA

NOTE: NA = not available.

SOURCE: National League for Nursing, New York, NY, unpublished data provided by staff at the U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Rockville, MD, 1990.

- increasing demand for RNs in hospitals due to advances in medical technology, shorter hospital stays, and increased severity of illness of hospital patients, which results in intensification of required RN services, and reduction in hospitals' ancillary nursing staff, which increases the range of tasks that must be performed by RNs;
- increasing demand for RNs in nonhospital settings (e.g., ambulatory care and home health care); and
- increasing opportunities for RN employment outside of traditional medical settings (*628*).

Increase in demand for RNs in the hospital sector is evidenced by increases in both RN employment and vacancy rates. Although the average number of full-time equivalent (FTE) RNs per 100 patients in community hospitals increased by 21 percent from 1983 to 1987 (from 80.0 to 97.8) (figure 10-7), RN vacancy rates in these hospitals increased from 4.4 percent to 11.3 percent during the same period (table 10-37) (*698*).[50] As the number of RNs in hospitals has increased, both the number of LP/VNs and reported LP/VN vacancy rates have decreased (figure 10-7, table 10-37) (*671,698*). Nursing homes, which employed almost 7 percent of RNs in 1988 (*673*), reported an RN vacancy rate of 8 percent in 1987 (*462*). The number of RNs employed in nursing homes may increase in the near future due to new requirements for greater RN staffing in Medicare- and Medicaid-certified nursing homes (Public Law 100-203) (*462,673*).

Rural Supply

The proportion of RNs who work in rural areas has decreased in recent years, but it is not clear whether this is the result of decreased demand in rural settings or decreased supply of nurses willing to locate there. In 1988, 17 percent of all RNs employed in nursing in the United States were employed in rural areas, compared with 20 percent in 1980 (table 10-41) (*681*). The rural/urban distribution of RNs varies considerably by region. The West North Central and East South Central regions had the highest proportions of their nurses in rural areas in 1988 (31 percent and 30 percent, respectively) (*681*). The distribution of RNs across rural and urban areas in 1988 cannot be fully explained by the distribution of U.S. registered hospital beds, 21 percent of which were located in rural areas in 1988 (*178*).[51]

Rural RNs are concentrated in the most populated counties. According to a recent analysis of 1988 data, only 8.7 percent of all RNs employed in nursing were located in counties of fewer than 50,000 residents (table 10-42) (*317*). Most of these were in counties of more than 25,000 residents (table 10-42) (*317*).[52]

Compared with RNs in larger counties, RNs in small counties (50,000 or fewer residents) are older, more likely to work full-time, more likely to work in

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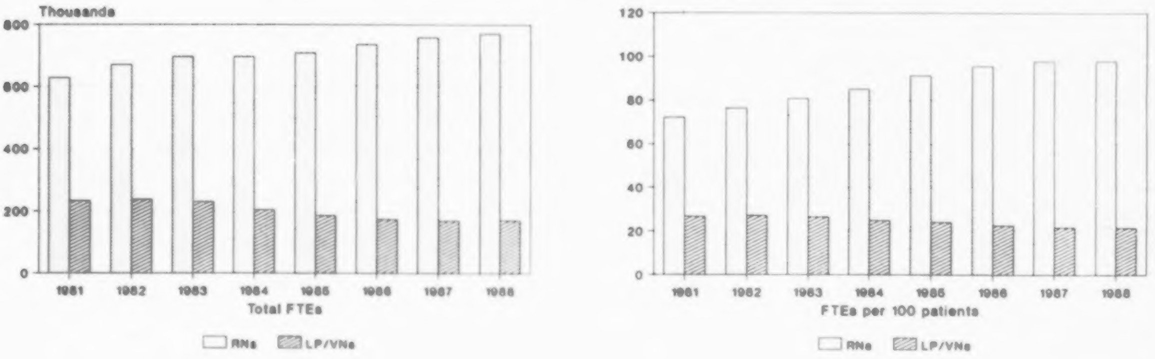
[50] Evidence of the nursing shortage is typically expressed in terms of budgeted staff vacancy rates at institutions which employ nurses. Budgeted vacancy rates may not be a true reflection of unfilled positions, however, due to use of temporary nursing staff, and due to the tendency of administrators to use budgeted vacancies as a tool to retain discretionary funds for staff development (*462*).

[51] Declining occupancy rates in rural hospitals in recent years (see ch. 5) may help to explain the shift of RNs from rural to urban areas.

[52] In this analysis, some of the larger counties (more than 50,000 residents) are nonmetro counties.

Figure 10-7—Registered Nurses (RNs) and Licensed Practical/Vocational Nurses (LP/VNs) in U.S. Community Hospitals:[a] Total FTEs[b] and FTEs per 100 Patients,[c] 1981-88



[a] As defined by the American Hospital Association.
[b] Full-time equivalent.
[c] Includes inpatients plus outpatient visits converted to inpatient equivalents.

SOURCE: Office of Technology Assessment, 1990. Data from American Hospital Association, *Hospital Statistics* (Chicago, IL: AHA, 1982-1989 eds).

Table 10-41—Metropolitan/Nonmetropolitan Distribution of Registered Nurses (RNs) Employed in Nursing in the United States by Region, 1980 and 1988[a]

	Employed RNs, 1980			Employed RNs, 1988		
	Total[b]	Metro	Nonmetro	Total[b]	Metro	Nonmetro
United States......	1,268,870	1,010,934 (80%)	257,936 (20%)	1,626,026	1,344,143 (83%)	281,883 (17%)
New England.........	106,027	80,297 (76%)	25,730 (24%)	130,838	106,908 (82%)	23,930 (18%)
Middle Atlantic.....	252,435	220,639 (87%)	31,796 (13%)	293,961	262,474 (89%)	31,487 (11%)
East North Central..	231,324	186,148 (80%)	45,176 (20%)	294,850	248,730 (84%)	46,120 (16%)
West North Central..	111,206	71,463 (64%)	39,743 (36%)	135,382	93,432 (69%)	41,950 (31%)
South Atlantic......	186,355	141,746 (76%)	44,609 (24%)	259,502	207,568 (80%)	51,934 (20%)
East South Central..	62,382	44,854 (72%)	17,528 (28%)	82,594	58,182 (70%)	24,412 (30%)
West South Central..	87,375	71,199 (81%)	16,176 (19%)	125,307	104,866 (84%)	20,441 (16%)
Mountain............	61,154	42,744 (70%)	18,410 (30%)	81,828	61,403 (75%)	20,425 (25%)
Pacific.............	170,612	151,844 (89%)	18,768 (11%)	221,765	200,581 (90%)	21,184 (10%)

[a] 1980 data as of November; 1988 data as of March.
[b] Total excludes RNs whose metro or nonmetro location was not known.

SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Division of Nursing, Rockville, MD, unpublished data from the 1980 and 1988 National Sample Surveys of Registered Nurses.

nursing home or public health settings, less likely to work in hospitals, and less likely to have a baccalaureate degree (table 10-43) (*317*). RNs in small counties are also more likely to work in administrative or supervisory positions. Most of these characteristics are most pronounced in the smallest counties; for example, RNs in the smallest counties are more than three times as likely as RNs in the largest counties to work in a nursing home or extended care facility. Oddly enough, within the smaller counties, the percentage of RNs with a baccalaureate degree as their highest degree in nursing is highest in the smallest counties (table 10-43) (*317*). This finding may be indicative of a more pressing need for well-trained RNs in the smallest, most remote facilities.

Rural RNs are less likely than urban RNs to be employed in nursing (77 *v.* 81 percent in 1988) (*681*). Analysis of 1984 national survey data revealed that 14 percent of RNs who resided in rural areas commuted to urban areas to work, while only

Table 10-42—Estimated Number and Distribution of Registered Nurses Employed in Nursing by County Population Size, 1988

County population size[a]	Estimated number of RNs	Percent disribution[b]
All U.S. counties	1,627,035	100.0
More than 50,000	1,485,999	91.3
50,000 or fewer	140,057	8.7
25,001 to 50,000	79,117	4.8
10,001 to 25,000	46,955	2.9
10,000 or fewer	13,986	0.9

[a] County population size does not necessarily reflect metro or nonmetro status.

[b] Percentages may not add to 100 due to rounding.

SOURCE: D.A. Kindig, University of Wisconsin, Madison, WI, and H. Movassaghi, Ithaca College, Ithaca, NY, unpublished analysis of data from the 1988 National Sample Survey of Registered Nurses (provided by the Division of Nursing, Bureau of Health Professions) conducted under contract with the University of North Dakota Rural Health Research Center, Grand Forks, ND, 1989.

2 percent of RNs residing in urban areas commuted to rural practice sites (*699*).

Data from selected States indicate substantial rural/urban differences in RN and LP/VN distribution. For example:

- *In Texas*, in 1986, the number of employed RNs per 100,000 residents was 228 in rural counties, compared with 460 in urban counties (*708*).
- *In Arizona*, in 1987, the total number of RNs per 100,000 residents was also much lower in rural than in urban counties (477 *v.* 850). LP/VN availability was also lower in rural than in urban counties (186 *v.* 238 per 100,000) (*220*).
- *In Oklahoma*, in 1987, the total number of RNs per 100,000 residents was again much lower in rural than in urban counties (397 *v.* 686), but the ratio of LP/VNs to 100,000 residents was actually higher in rural than in urban counties (387 *v.* 286) (*451*).

These differences may be explained to some extent by rural/urban distribution of hospitals, where most RNs and LP/VNs are employed. In Texas, in 1986, for example, only 19 percent of the State's hospital beds were located in rural counties, and 42 of the 43 Texas counties without a hospital were rural (*708*). A recent study found that vacancy rates for RNs, LP/VNs, and critical care RNs in this State were only slightly higher in rural than in urban hospitals (*595*).

Nurse Supply In Rural and Urban Hospitals

Rural hospitals have markedly fewer RNs and distinctly lower RN-to-LP/VN ratios than their urban counterparts (table 10-44) (*625*). Among rural hospitals, hospitals in frontier areas have especially few FTE RNs—as little as one-fifth as many FTE RNs as nonfrontier rural hospitals of comparable size. Medicare-certified sole community hospitals tend to have slightly larger FTE RN staffs than those of other rural hospitals (*625*).

In contrast, rural hospitals of any given size generally have slightly more FTE LP/VNs than their urban counterparts (table 10-44). Again, however, frontier hospitals have the fewest FTE LP/VNs (*625*).

Urban hospitals have up to two times as many FTE RNs per FTE LP/VN as do rural hospitals of comparable size (table 10-44) (*625*), reflecting a greater reliance on nurses with less training and lower salaries in rural hospitals. It is unclear whether the greater representation of LP/VNs in rural hospitals is due to the hospitals' inability to pay the higher RN salaries, their inability to recruit qualified RNs from the larger national pool, or a lower demand for RNs in these hospitals.

Eighteen percent of large urban hospitals and 9.5 percent of rural hospitals reported closing beds in 1987 due to shortage of nursing staff (*699*). Although a larger proportion of rural than urban hospitals report no vacant RN positions, high RN vacancy rates (over 15 percent) are more common in rural than in urban hospitals (*699*). Because most rural hospitals are small and employ relatively few RNs, they may be subject to extreme shifts in vacancy rates, and they may be more sensitive to the loss of a single nursing employee.

Data are scarce regarding the extent of the nursing shortage in ambulatory and other nonhospital, nonnursing home health care settings, which employ approximately 25 percent of all RNs and 22 percent of all LP/VNs (table 10-39) (*671,681*). Lack of such data hinders accurate assessment of the extent of the nursing shortage. This limitation is particularly troubling given the recent increase in RN employment in ambulatory care settings (*673*) and given the relatively large proportion of RNs in small rural

Table 10-43—Characteristics of Registered Nurses (RNs) Employed in Nursing by County Population Size,[a] 1988

		County population size				
	All U.S. counties	more than 50,000 residents	50,000 or fewer residents	25,001 to 50,000 residents	10,001 to 25,000 residents	10,000 or fewer residents
	Percent of RNs:					
Basic nursing education:						
Diploma	44.6	44.5	45.6	43.8	47.1	50.9
Associate degree	31.5	30.9	38.6	40.5	37.2	32.4
Baccalaureate, masters or doctoral degree	23.5	24.2	15.5	15.4	15.5	16.7
Unknown	0.4	0.4	0.2	0.3	0.2	*
Total[b]	100.0	100.0	100.0	100.0	100.0	100.0
Highest nursing degree:						
Diploma	36.5	36.1	41.1	39.5	42.7	44.5
Associate degree	28.0	27.2	36.2	38.5	34.2	29.1
Baccaluareate degree	28.7	29.5	20.1	18.8	21.1	24.3
Masters or doctoral degree	6.3	6.7	2.5	2.9	1.8	2.1
Unknown	0.4	0.4	0.2	0.3	0.2	*
Total[b]	100.0	100.0	100.0	100.0	100.0	100.0
Received degree/certificate from nurse practitioner/midwife program:						
Yes	3.4	3.5	2.3	2.8	1.6	1.9
No	96.1	96.0	97.4	96.9	98.2	98.1
Unknown	0.5	0.5	0.2	0.3	0.2	*
Total[b]	100.0	100.0	100.0	100.0	100.0	100.0
Age:						
<25	4.7	4.8	3.4	3.7	2.7	4.0
25-34	33.3	33.6	30.4	30.4	31.1	27.7
35-44	31.7	31.6	31.2	31.8	31.6	25.8
45-54	19.2	19.0	21.4	20.4	21.2	27.5
>55	10.7	10.4	13.6	13.5	13.2	14.7
Unknown	0.5	0.5	0.2	0.2	0.2	0.2
Total[b]	100.0	100.0	100.0	100.0	100.0	100.0
Employment status:						
Full-time	67.6	67.4	69.5	71.1	67.1	68.0
Part-time	32.4	32.5	30.5	28.9	32.9	32.0
Full-time/part-time	0.1	0.1	*	*	*	*
Total[b]	100.0	100.0	100.0	100.0	100.0	100.0
Field of employment:						
Hospital	67.9	68.9	57.8	60.4	54.7	53.7
Nursing home/extended care	6.6	6.0	13.5	11.8	14.5	19.8
Nursing education	1.8	1.8	1.8	2.4	0.9	1.2
Public/community health	6.8	6.3	11.8	10.5	13.4	14.4
Ambulatory care	7.7	7.7	7.7	7.8	8.2	5.7
Other[c]	8.9	9.2	7.3	7.1	8.2	5.4
Unknown	0.1	0.1	0.0	*	0.1	*
Total[b]	100.0	100.0	100.0	100.0	100.0	100.0

counties who work in these settings (table 10-43) (*317*).

OTHER HEALTH PROFESSIONALS

Dentists

National Supply

In 1986, there were 143,000 practicing dentists in the United States—a 40 percent increase in absolute numbers since 1970, and a 20 percent increase in the active dentist-to-population ratio (table 10-45) (*671*). Of these dentists, 85 percent were in general practice, but this proportion is declining (*671*). From 1981 to 1987, the general and pediatric dentist-to-population ratio increased by only 1.4 percent, while the dental specialist-to-population ratio increased by 35 percent (table 10-46) (*686*). The trend towards specialty practice in dentistry is slight compared with that seen in medicine, but it may be cause for concern in the future if overall supply decreases (table 10-47) (*673*).

Table 10-43—Characteristics of Registered Nurses (RNs) Employed in Nursing by County Population Size,[a] 1988—Continued

	All U.S. counties	County population size: more than 50,000 residents	50,000 or fewer residents	25,001 to 50,000 residents	10,001 to 25,000 residents	10,000 or fewer residents
	Percent of RNs:					
Title of position:						
Administrator/Assistant administrator	6.0	5.6	10.5	8.4	11.4	19.6
Supervisor	5.6	5.2	9.9	10.1	10.0	8.3
Instructor	3.8	3.8	4.0	4.7	3.3	2.6
Staff/general duty nurse	66.9	67.3	62.5	62.6	63.2	59.6
Practitioner/midwife	1.4	1.4	1.4	1.7	1.1	1.2
Clinical specialist	1.8	1.9	0.7	0.7	0.7	0.4
Certified nurse anesthetist	1.0	1.0	1.4	1.3	1.5	1.5
Other[d]	13.0	13.2	9.3	10.2	8.7	6.9
Unknown	0.4	0.4	0.2	0.3	0.1	*
Total[b]	100.0	100.0	100.0	100.0	100.0	100.0

NOTE: * = less than 0.05 percent of total.

[a] County population size does not necessarily reflect metro or nonmetro status.

[b] Percentages may not add to 100 due to rounding.

[c] "Other" includes the following: student health, occupational health, private duty, self-employment, and other.

[d] "Other" includes the following: consultant, head nurse/assistant head nurse, nurse clinician, research, private duty, and other.

SOURCE: D.A. Kindig, University of Wisconsin, Madison, WI, and H. Movassaghi, Ithaca College, Ithaca, NY, unpublished analysis of data from the 1988 National Sample Survey of Registered Nurses (provided by the Division of Nursing, Bureau of Health Professions) conducted under contract with the University of North Dakota Rural Health Research Center, Grand Forks, ND, 1989.

Box 10-D—Provider Profile: Dentists

Dentists undergo 4 years of post-baccalaureate undergraduate training in general and some specialty dentistry (*671*). Graduates of these programs may enter dental residency programs to receive training in orthodontics, oral and maxillofacial surgery, periodontics, pedodontics, endodontics, prosthodontics, public health dentistry, or oral pathology (*671*).

Variations in active dentist supply among geographic regions and States are as great as for other health professions. In 1986, the ratio of dentists to 100,000 residents in the United States was 57.3. Ratios in the States ranged from a high of 76.2 in Connecticut to a low of 35.2 in Mississippi (*671*). Regionally, ratios in the Northeast were well above the national average, while the South fell well below (*671*). These patterns show little difference from those existing in 1970 (*671*), suggesting that increased national supply has had little effect on State and regional distribution.

In 1988, there were 793 designated dental HMSAs in the United States, with a resident population of almost 16 million. An estimated 1,729 dentists would be needed to remove these designations. Over 70 percent of all dental HMSAs are in rural areas.[53]

Trends in the number of dental students suggest a leveling off in future supply. For example:

- the number of applicants to dental schools decreased by nearly two-thirds between 1975 and 1986, from 15,734 to 5,724;
- the number of first-year enrollments decreased by 27 percent from 1978-79 to 1986-87; and
- the number of graduates decreased by 14 percent from 1982-83 to 1985-86 (*671*).

Rural Supply

The distribution of dentists across urban and rural areas is very similar to that of physicians. For all

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[53] See ch. 11, table 11-5.

Table 10-44—Estimated Supply of Registered Nurses (RNs) and Licensed Practical Vocational Nurses (LP/VNs) in U.S. Registered Community Hospitals by Metropolitan/Nonmetropolitan, Frontier, and Sole Community Hospital Status, 1987

	Mean number of estimated FTE[a] RNs, by hospital bed size:				
	6-24	25-49	50-99	100-199	200-299
All U.S. community hospitals[b]	7.6	15.4	37.3	90.5	186.8
Metro	9.5	22.6	48.8	105.2	197.6
Nonmetro	7.3	14.2	31.8	69.9	138.9
Within nonmetro:					
Frontier	6.7	9.8	16.3	32.5*	26.0*
Not frontier	7.5	15.0	33.4	70.8	139.8
Sole community hospital[d]	8.1	15.4	36.2	81.7	132.9*
Not sole community hospital	7.1	14.0	31.3	68.7	139.6

	Mean number of estimated FTE[a] LP/VNs, by hospital bed size:				
	6-24	25-49	50-99	100-199	200-299
All U.S. community hospitals[b]	3.5	7.4	15.2	27.8	45.3
Metro	2.6	7.5	15.7	27.0	43.0
Nonmetro	3.6	7.4	14.9	28.9	55.5
Within nonmetro:					
Frontier	3.0	4.3	6.9	6.9*	18.0*
Not frontier	3.9	8.0	15.7	29.5	55.8
Sole community hospital[d]	2.7	6.4	13.3	29.5	45.5*
Not sole community hospital	3.9	7.6	15.1	28.9	56.5

	Estimated FTE[a] RN-to-LP/VN ratio[c], by hospital bed size category:				
	6-24	25-49	50-99	100-199	200-299
All U.S. community hospitals[b,d]	2.88	3.11	3.81	5.70	8.74
Metro	3.82*	4.25	4.57	6.69	9.75
Nonmetro	2.75	2.91	3.45	4.33	4.28

NOTE: "*" indicates that the figure is based on fewer than 30 cases.

[a] Full-time equivalent.

[b] The definition of "community hospital" used by OTA in this analysis differs slightly from that used by the American Hospital Association (see app. C)

[c] Ratios were calculated using nonrounded figures.

[d] 130 hospitals without any LP/VNs, were dropped from the analysis.

SOURCE: U.S. Congress, Office of Technology Assessment, analysis of data from American Hospital Association 1987 Survey of Hospitals, performed for Rural Health Care report (see app. C).

dentists, office-based dentists, and general practice and pediatric dentists, ratios per 100,000 residents were much lower in rural than in urban counties in 1987 (table 10-48) (*686*). Within rural counties, ratios were directly related to county size, with the smallest counties (fewer than 2,500 residents) having fewer than one-half as many dentists per capita as the largest counties. Interestingly, the greatest increases in both general and specialist dentist supply between 1981 and 1987 occurred in the smaller rural counties (table 10-46) (*686*). However, in 1987, 183 counties in the United States still had no general practice or pediatric dentist (table 10-48) (*686*). All but two of these counties were rural counties of fewer than 25,000 residents, and most of these were counties of low population density.

Data on the age distribution of dentists show no notable rural/urban differences, but the proportion of dentists who are young decreased substantially in all areas between 1981 and 1987 (*686*). This trend reflects the decreasing number of new graduates in recent years. As older dentists retire, rural areas will have to compete with urban areas for an increasingly limited supply of new dentists.

Table 10-45—Supply and Distribution of Active Dentists by General and Specialty Practice, 1970, 1980, and 1986[a] [b]

	1970			1980			1986		
Specialty	Number	Percent[c]	Dentists per 100,000 people[b]	Number	Percent[c]	Dentists per 100,000 people[b]	Number	Percent[c]	Dentists per 100,000 people[b]
All active	102,200	100.0	49.5	126,200	100.0	55.2	143,000	100.0	58.9
General practice	92,880	90.9	45.0	109,050	86.4	47.7	121,700	85.1	50.2
All specialties	9,320	9.1	4.5	17,150	13.6	7.5	21,300	14.9	8.8
Orthodontics	3,900	3.8	1.9	6,560	5.2	2.9	7,150	5.0	2.9
Oral & maxillofacial surgery	2,190	2.1	1.1	3,960	3.1	1.7	4,730	3.3	1.9
Periodontics	930	0.9	0.5	2,240	1.8	1.0	3,030	2.1	1.2
Pedodontics	1,070	1.0	0.5	2,060	1.6	0.9	2,600	1.8	1.1
Endodontics	460	0.5	0.2	1,170	0.9	0.5	1,900	1.3	0.8
Prosthodontics	590	0.6	0.3	950	0.8	0.4	1,560	1.1	0.6
Public health dentistry	90	0.1	*	110	0.1	0.1	170	0.1	0.1
Oral pathology	90	0.1	*	100	0.1	*	160	0.1	0.1

NOTE: "*" = fewer than 0.05 dentists per 100,000 people.

[a] Includes dentists in Federal service.

[b] All ratios are based on total population.

[c] Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Health & Human Services, Health Resources and Services Administration, Bureau of Health Professions, Sixth Report to The President & Congress on The Status of Health Personnel in The United States, DHHS Pub. No. HRS-P-OD-88-1 (Rockville, MD: HRSA, June 1988), table 5-4.

Table 10-46—Number of General Practice and Pediatric Dentists and Other Specialty Dentists Per 100,000 Residents by Type of County, 1981 and 1987

	General practice and pediatric dentists[a]			Other specialties[a]		
	Rate per 100,000 residents		Percent change, 1981-87	Rate per 100,000 residents		Percent change, 1981-87
	1981	1987		1981	1987	
Metro	45.7	46.2	1.2	7.0	9.3	32.6
Nonmetro	31.2	31.6	1.2	2.0	3.0	49.9
50,000 or more	34.2	34.0	-0.7	3.8	5.5	43.5
25,000 to 49,999	31.8	32.2	1.2	1.7	2.7	52.6
10,000 to 24,999	28.2	29.1	3.0	0.5	0.8	67.6
5,000 to 9,999	25.8	27.1	5.1	0.2	0.4	103.5
2,500 to 4,999	25.5	25.5	0.1	0.1	0.7	420.5
fewer than 2,500	13.2	14.4	8.7	0.0	0.0	0.0
Population < 10,000:						
<=6 persons/square mile	27.7	28.7	3.7	0.1	0.5	520.6
>6 persons/square mile	23.9	25.0	4.7	0.2	0.4	86.3
U.S. total	42.3	42.9	1.4	5.8	7.9	34.7

[a] Includes both full-time and part-time dentists. Part-time dentists are counted as full-time dentists.

SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Office of Data Analysis and Management, Rockville, MD, unpublished data from the Area Resource File system provided to OTA in 1989 and 1990.

Table 10-47—Supply of Active Dentists in the United States: Estimated 1988 and Projected 1990-2020

Year	Number of active dentists	Active dentists per 100,000 people[a]
1988	146,800	59.4
1990	149,700	59.8
2000	154,600	57.6
2010	151,200	53.5
2020	140,700	47.8

[a] Ratios are based on total population, including Armed Forces overseas, as of July 1 for 1990 and succeeding years.

SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Seventh Report to the President and Congress on the Status of Health Personnel in the United States, DHHS Pub. No. HRS-P-OD-90-1 (Rockville, MD: HRSA, June 1990), table VII-A-5.

Box 10-E—Provider Profile: Pharmacists

In order to obtain a license, pharmacists must complete either a 5-year baccalaureate education program or a 6-year doctoral program (*671*). The amount of preprofessional college study required by these programs varies from 0 to 2 years. The number of entry-level doctoral pharmacy programs and degrees awarded has increased in recent years, and this increase is projected to continue. The major dimensions of pharmacy practice include: general management and administration of the pharmacy; activities related to processing the prescription; drug-related decisionmaking and patient care functions; drug preparation, distribution, and control; and education of health care professionals and patients (*671*).

Table 10-48—Number of Dentists Per 100,000 Residents and Number of Counties Without General Practice or Pediatric Dentists by Type of County, 1987

	Number of dentists[a] per 100,000 residents			Counties without general practice or pediatric dentists, 1987	
	Total	Office-based	General practice and pediatric	Number of counties	Resident population
Metro	57.7	55.5	46.2	2	15,400
Nonmetro	35.3	34.6	31.6	181	731,500
50,000 or more	40.4	39.5	34.0	0	0
25,000 to 49,999	35.5	34.8	32.2	0	0
10,000 to 24,999	30.4	29.8	29.1	11	141,200
5,000 to 9,999	28.1	27.5	27.1	41	291,700
2,500 to 4,999	26.6	26.3	25.5	48	178,300
fewer than 2,500	15.0	14.4	14.4	81	120,300
Population < 10,000:					
<=6 persons/square mile	29.7	29.2	28.7	115	272,600
>6 persons/square mile	26.0	25.4	25.0	57	333,100
U.S. total	52.7	50.8	42.9	183	746,900

[a] Includes both full-time and part-time dentists.

SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Office of Data Analysis and Management, Rockville, MD, unpublished data from the Area Resource File system provided to OTA in 1989 and 1990.

Pharmacists

National Supply

There were an estimated 157,800 practicing pharmacists in the United States in 1988 (*673*). Paralleling the pattern in dentist supply, the absolute number of pharmacists increased by 40 percent and the pharmacist-to-population ratio increased by 17 percent from 1970 to 1988 (table 10-49) (*673*). Significant trends in the pharmacy profession include:

- an increase in the proportion of pharmacists who are female (from 4 percent of the active work force in 1950 to 26 percent in 1988) (*673*);
- an increase in the percentage of minority pharmacists (from 8.9 percent in 1980 to 10.5

Table 10-49—Supply of Professionally Active Pharmacists, Selected Years: Estimated 1970-1988, and Projected 1990-2020[a]

Year	Number of active pharmacists[a]	Active pharmacists per 100,000 people[b]
1970	112,600	54.5
1980	142,400	62.2
1988	157,800	63.8
1990	161,600	64.5
2000	181,400	67.6
2010	200,500	71.0
2020	213,800	72.6
Percent change, 1970-1988	40.1	17.1
Percent change, 1988-2020	35.5	13.8

[a] Includes pharmacists in Federal service.

[b] Ratios based on total population, including Armed Forces overseas, as of July 1.

SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Seventh Report to The President & Congress on The Status of Health Personnel in The United States, DHHS Pub. No. HRS-P-OD-90-1 (Rockville, MD: HRSA, June 1990), table XII-1.

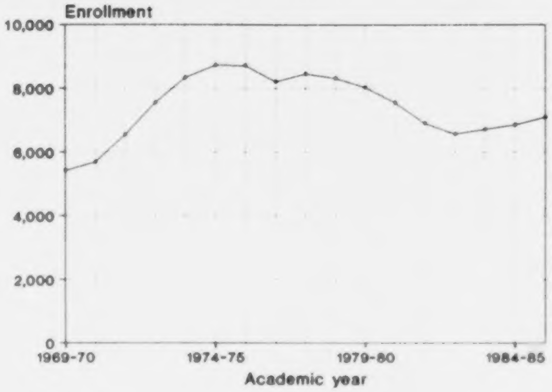
percent in 1988) (*673*); and

- a change in professional focus from merely distributing drugs to providing a wider range of services, including quality assurance, patient education, patient care activities, and monitoring in order to reduce adverse drug effects (*671*).

After decreasing for a number of years, enrollments in U.S. schools of pharmacy have recently increased slightly, although they are still well below the peak level reached in 1974-75 (figure 10-8) (*671*). As of 1988, there were 74 colleges of pharmacy in the United States (*466*).

The National Association of Boards of Pharmacy reported that 68 percent of all active pharmacists in 1986 were in community pharmacies, with the great majority in chain store pharmacies (*671*). Only 8 percent were in independent establishments. Just over 20 percent were working in hospital settings, and the remaining 12 percent were employed in manufacturing, wholesale practice, teaching, government agencies, and other areas (*671*). The Federal Government at one time designated pharmacy HMSAs but no longer does so (see ch. 11).

Figure 10-8—First Year Enrollment in U.S. Schools of Pharmacy, Academic Years 1969-70 Through 1985-86[a]



[a] Includes students in the first of 3 years of professional pharmacy education. Excludes students in pre-pharmacy education.

SOURCE: Office of Technology Assessment, 1990. Data from U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, *Sixth Report to The President and Congress on The Status of Health Personnel in The United States*, DHHS Pub. No. HRS-P-OD-88-1 (Rockville, MD: HRSA, June 1988), table 8-3.

BHPr projects continuing increases in both the number of active pharmacists and the pharmacist-to-population ratio over the next three decades (table 10-49) (*673*). The increasing number of female pharmacists in the work force may lower the overall number of FTE pharmacists, since female pharmacists tend to work fewer hours than their male counterparts (*673*). Despite recent increases in supply, however, demand is outpacing supply, and many employers have reported difficulty in recruiting for vacant pharmacist positions (*673*). Taking into account recent trends in the output of the pharmaceutical industry, as well as the expanded clinical role played by pharmacists, future requirements may continue to exceed supply.

Rural Supply

Current information on the national rural/urban distribution of pharmacists is scarce. No national census of pharmacists has been conducted since the 1970s, and no information on the rural/urban distribution of pharmacists is available from that census

(*466*).[54] State studies that examined the rural/urban distribution of pharmacists during the 1980s suggest there are a few areas with shortages but little overall reason for concern.

- *In Georgia*, in 1983, only one county lacked a licensed pharmacist, and the pharmacist-to-100,000 population ratio was only slightly lower in rural than in urban counties (81 *v.* 88) (*740*).
- *In Texas*, in 1988, 14 rural counties had no pharmacist (*575*).
- *In Arizona*, in 1987, the average pharmacist-to-100,000 population ratio in the 13 rural counties was 47 (range 18-58) as compared with 78 in the 2 urban counties (*220*).
- *In Oklahoma*, in 1987, the pharmacist-to-100,000 population ratio in rural counties was 67 compared with 72 in urban counties (*451*).
- *In Nebraska*, in 1981, 52 percent of all active pharmacists were located in the State's 4 urban counties (*429*). This distribution closely parallels that of Nebraska's resident population, 53 percent of whom resided in urban counties in 1986 (*631*).

Optometrists

National Supply

The active optometrist-to-100,000 population ratio increased from 8.9 in 1970 to 10.6 in 1988. BHPr projects that the ratio will increase to 14.2 active optometrists per 100,000 residents by 2020 (table 10-50) (*673*).

The number of applicants to schools and colleges of optometry peaked in 1975-1976 and has declined continuously since then (*671*). Enrollments increased until 1985-86 but have since leveled off (*671,673*); the number of graduates increased until 1983-84, declined slightly in 1984-85, and has remained relatively stable since that time (*671,673*).

The American Optometric Association (AOA) estimates that nearly three-fourths of the 25,400 practicing optometrists in the United States in 1989 were in independent practice, with the remainder employed by HMOs, ophthalmologists, optical chains, the Armed Forces, and other employers (*56*). The average age of optometrists is decreasing: from 1980 to 1988, the median age fell from 49 to 41 years (*673*). The proportion of all optometrists who are women is expected to increase from 11.5 percent in 1988 to 28.4 percent in the year 2000 (*673*). As for pharmacists, the Federal Government has ceased to designate HMSAs for vision care providers (see ch. 11).

Box 10-F—Provider Profile: Optometrists

Optometrists examine, diagnose, and treat problems of the eyes and vision system (*673*). Optometry students must complete from 2 to 3 years of preoptometry higher education before entering a 4-year program in optometry. On completion of undergraduate training, some optometrists enter specialized residency programs in fields such as family practice, primary care, geriatric, pediatric, and rehabilitative optometry (*671*).

Table 10-50—Supply of Professionally Active Optometrists, Selected Years: Estimated 1970-1988, and Projected 1990-2020[a]

Year	Number of active optometrists[a]	Active optometrists per 100,000 people[b]
1970	18,400	8.9
1980	22,200	9.7
1988	26,100	10.6
1990	27,100	10.8
2000	33,100	12.3
2010	38,800	13.7
2020	41,700	14.2

[a] Includes optometrists in Federal service.

[b] Ratios based on total population, including Armed Forces overseas, as of July 1.

SOURCE: U.S. Department of Health & Human Services, Health Resources and Services Administration, Bureau of Health Professions, Seventh Report to The President & Congress on The Status of Health Personnel in The United States, DHHS Pub. No. HRS-P-OD-90-1 (Rockville, MD: HRSA, June 1990), table XI-A-1.

Rural Supply

Optometrists are important providers of primary eye and vision care in areas that lack ophthalmologists. An analysis of 1983 registries of optometrists and ophthalmologists conducted by the AOA found that optometrists were practicing in 6,612 communities[55] in the United States and in 4,153 were the only providers of primary eye/vision care (table 10-51) (*56*). It is not known whether optometrists are more or less likely than ophthalmologists to practice in rural areas, because available data are neither comparable nor consistent. Over one-third of optometrists practice in communities of fewer than 25,000 residents (table 10-52) (*42*).[56] Twenty-one percent of ophthalmologists[57] surveyed in 1988 were practicing in large (more than 10,000 residents) "rural"[58] areas, and 2 percent in small (fewer than 10,000 residents) "rural" areas (*49*). However, data from the AMA show only 4.7 percent of all ophthalmologists practicing in rural counties in 1988 (*686*).

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[54] The American Association of Colleges of Pharmacy, in cooperation with the National Association of Boards of Pharmacy, is currently preparing to conduct another census. Rural/urban distributional information will be available from this census, but not for another 2 years (*466*).

Data from two States suggest that the urban/rural distribution of optometrists is more even than that of many other health professionals.

- *In Arizona*, in 1987, the optometrist-to-100,000 population ratio was 8 in rural counties compared with 10 in urban counties (*220*).
- *In Oklahoma*, in 1987, the optometrist-to-100,000 population ratio was higher in rural than in urban counties (13.6 *v.* 9.8) (*451*).

Allied Health Professionals

The term "allied health" has no set definition. The vagueness of the term is due in part to the continuing and rapid evolution of the numerous health fields it includes, and the lack of a set definition may be one reason why the allied health professions have historically received relatively little attention from researchers and policymakers. Allied health professionals (AHPs) are a diverse group of practitioners who make up the majority of the health care work force, have education varying from on-the-job training to advanced college degrees, and are employed in all types of health care settings. Table 10-53 lists some of the many professions in this category.

National Supply

Between 1970 and 1986, the total estimated number of AHPs employed in the United States almost doubled, reaching 1.3 million[59] in 1986 (table 10-53) (*671*). This rapid growth is largely attributable to increasing need to delegate tasks formerly performed by other health professionals, and the rapid evolution of medical technologies that require skilled personnel (*288*). Occupations with the greatest rates of growth between 1975 and 1986 were dietetic technicians, medical technologists, and medical laboratory technicians (table 10-53) (*671*).

Despite this growth, concerns have mounted in recent years over a shortage of certain AHPs. The paucity of information regarding the demand for and supply of AHPs prevents an accurate determination of the degree of shortage.[60] However, available data and anecdotal evidence suggest that shortages may reach critical proportions during the next two decades if current downward trends in enrollment in AHP training programs continue.

Characteristics of the AHP Labor Market—In a 1989 report on allied health services, the Institute of Medicine (IOM) found that the AHP labor market is characterized by:

- a predominantly female work force;
- technically competent workers;
- highly regulated professions and work environments;
- educational programs that have difficulty capturing limited resources and recruiting enough students; and
- a rapidly changing work environment where employers must make decisions as to the hiring and compensation of a wide range of health

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[55] "Communities" include cities and towns in the United States, which are listed by State in directories published by the American Optometric Association (*41*) and the American Academy of Ophthalmology (*14*).

[56] Data do not distinguish between rural and urban location.

[57] Includes only ophthalmologists belonging to the American Academy of Ophthalmology.

[58] Does not reflect metro/nonmetro location. Some smaller communities may be in metro areas. Size of community was determined by survey analysts, who looked up the name of each community and placed it in one of four size categories, the two smallest of which were termed "rural" (*50*).

[59] This somewhat restrictive estimate, which recognizes only specific groups of AHPs who have received professional training at the post-secondary level, is less than one-half of a recent estimate made by the American Society of Allied Health Professionals (ASAHP). Using a broader definition, ASAHP estimates a supply of over 3 million AHPs (*462*).

[60] The Bureau of Labor Statistics (BLS) collects information on certain categories of licensed, employed AHPs, but these data are limited because many AHPs lack formal training or licensure. For example, the BLS estimated that there were 57,000 employed speech-language pathologists and audiologists in 1986 (table 10-53). The American Speech-Language-Hearing Association (ASHA), however, estimated that approximately 86,700 speech-language pathologists and audiologists (both licensed and nonlicensed) were active in the work force in 1987 (*288*).

Table 10-51—Number of Cities With Optometrists and Ophthalmologists by State, 1983

State	Cities with optometrists	Cities with ophthalmologists	Difference[a]
Alabama	101	27	74
Alaska	14	5	9
Arizona	55	23	32
Arkansas	92	24	68
California	505	254	251
Colorado	73	27	46
Connecticut	104	55	49
Delaware	11	7	4
District of Columbia	1	1	0
Florida	207	116	91
Georgia	146	50	96
Hawaii	24	8	16
Idaho	49	13	36
Illinois	326	117	209
Indiana	176	51	125
Iowa	145	30	115
Kansas	119	27	92
Kentucky	116	32	84
Louisiana	88	34	54
Maine	67	23	44
Maryland	103	52	51
Massachusetts	218	97	121
Michigan	253	94	159
Minnesota	166	49	117
Mississippi	81	26	55
Missouri	152	35	117
Montana	49	11	38
Nebraska	74	13	61
Nevada	16	6	10
New Hampshire	38	22	16
New Jersey	292	148	144
New Mexico	39	16	23
New York	400	212	188
North Carolina	176	59	117
North Dakota	42	7	35
Ohio	313	91	222
Oklahoma	105	24	81
Oregon	95	29	66
Pennsylvania	407	162	245
Rhode Island	30	12	18
South Carolina	91	27	64
South Dakota	48	8	40
Tennessee	124	36	88
Texas	273	95	178
Utah	37	11	26
Vermont	28	16	12
Virginia	119	52	67
Washington	117	43	74
West Virginia	80	22	58
Wisconsin	202	52	150
Wyoming	25	8	17
Total cities in U.S.	6,612	2,459	4,153

NOTE: Only communities with either an optometrist or an opthalmologist are included in the count.

[a] Minimum number of cities where one or more optometrists were practicing in 1983, but where no ophthalmologists were practicing in 1983.

SOURCE: F. Aron, Manager of Information and Data, American Optometric Association, St. Louis, MO, personal communication, 1989. Data were collected by hand counts of optometrists from American Optometric Association, The Blue Book of Optometrists, 1984, 37th ed. (Chicago, IL: Professional Press, Inc., 1983) and of ophthalmologists from American Academy of Ophthalmology, The Red Book of Ophthalmology, 1983, 35th ed. (Chicago, IL: Professional Press, Inc., 1983).

Table 10-52—Distribution of Optometrists by Community Population Size, 1989[a]

Community population size[b]	Percent of optometrists[c]
"Urban" (total)	40.7
500,000 or more	13.2
100,000-500,000	12.9
25,000-100,000	14.6
"Suburban" (total)	24.8
500,000 or more	2.9
100,000-500,000	6.0
25,000-100,000	15.9
Under 25,000	34.4
Total[c]	100.0

[a] Data based on approximately 1,100 replies to the 1989 American Optometric Association (AOA) Economic Survey, which was sent to a random sample of AOA members. The AOA membership represents approximately 75 percent of all practicing optometrists in the United States.

[b] Community population size was self-reported. It does not necessarily reflect metro or nonmetro location.

[c] Percentages may not add to 100 due to rounding.

SOURCE: American Optometric Association, St. Louis, MO, unpublished data from the 1989 AOA Economic Survey provided to OTA in 1989.

professionals in the absence of adequate information (*288*).

Selected information on the educational preparation, employment, role, and regulatory environment of practitioners in selected AHP fields is summarized in box 10-G.

Trends in the Supply of AHPs—An adequate future supply of AHPs will depend on changes in health care financing policies, technology, educational programs, and the regulatory environments that affect each type of AHP. Of the 10 professions studied by IOM, physical therapists were most often reported as being in short supply (*288*). The IOM concluded that, ''barring major economic or health care financing contractions, the growth of the number of jobs for allied health workers will substantially exceed the nation's average rate of growth for all jobs''. The growth rate is expected to be highest for physical therapists and medical records specialists. In the fields of physical therapy, radiologic technology, occupational therapy, and medical record services, IOM indicated a potential for serious future imbalances in supply and demand. In most other allied health fields—clinical laboratory technology, dental hygiene, speech-language pathology and audiology, respiratory therapy, and dietetic technology—supply and demand were expected to remain fairly well balanced through the year 2000, provided that downward trends in the number of graduates in certain professions are halted and that improvements are made in salary and working conditions (*288*).

Recent and projected trends in allied health fields include:

- A 35 percent decrease in the number of graduates from clinical laboratory technologist programs from 1982 to 1988, and a 25 percent decrease in the number of graduates from clinical laboratory technician programs from 1982 to 1987 (*673*). A recent national survey indicated a 54 percent undersupply of technologists and a 38 percent undersupply of technicians.[61] Other reports also indicate a marked undersupply of these professionals in most employment settings (*288*).
- Increased demand for occupational therapists (OTs) during the past several decades (*288,673*), and a projected 52 percent increase in the number of OT jobs from 1986 to 2000 (*288*). Short supply is linked to the limited number of training programs and the inability of those programs to recruit faculty (*288*). IOM predicts a future shortage of OTs unless these conditions change (*288*). The number of OT graduates did increase by 18 percent from 1982 to 1988 (*673*).
- A projected 87 percent increase in the number of jobs for physical therapists (PTs) from 1986 to 2000 (*288*). Although the number of new PT graduates has increased substantially during the 1980s (*673*), supply may still not be able to keep pace with demand.
- A 24 percent decline in the number of dental hygiene graduates from 1980 to 1985 (the number increased slightly in 1986) (*288*). Strengthening entry requirements and increasing the length of training required may place further limits on the pool of interested students. Some areas have reported acute shortages of dental hygienists (*288*).
- A projected 45 percent increase in the number of jobs for radiologic personnel from 1986 to

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[61] **Based on an informal survey of constituent societies conducted by the American Society for Medical Technology (*288*).**

Table 10-53—Estimated Supply of Selected Allied Health Personnel Employed in the United States: 1970, 1975, 1980, and 1986, and Percent Change, 1975-86[a] [b]

Occupation	1970	1975	1980	1986	Percent change, 1975-86
Total allied health personnel	673,000	899,000	1,100,000	1,330,000	47
Dental hygienist	15,000	27,000	38,000	48,000	77
Dental assistant	112,000	134,000	156,000	175,000	31
Dental laboratory technician	31,000	42,000	53,000	63,000	50
Dietitian	17,000	23,000	32,000	41,000	78
Dietetic technician	2,000	3,000	4,000	7,000	133
Medical record administrator	10,000	12,000	13,000	16,000	33
Medical record technician	42,000	53,000	64,000	76,000	43
Medical laboratory personnel:	135,000	191,000	249,000	293,000	53
Medical technologist	57,000	93,000	138,000	174,000	87
Cytotechnologist	3,000	6,000	7,000	9,000	50
Medical laboratory technician	1,000	8,000	13,000	16,000	100
Other laboratory personnel	74,000	84,000	91,000	94,000	11
Occupational therapist	6,000	21,000	25,000	32,000	52
Physical therapist	30,000	38,000	50,000	63,000	65
Radiologic service worker	87,000	97,000	116,000	143,000	47
Respiratory therapist	30,000	43,000	56,000	65,000	51
Speech pathologist/audiologist	19,000	32,000	42,000	57,000	78
Other allied health personnel[c]	135,000	183,000	212,000	251,000	37

[a] All numbers are rounded to the nearest thousand. Some numbers may differ from those that appear elsewhere due to revisions and independent estimations.

[b] Includes only those personnel who have received certification/formal training in their particular allied health field. Does not include on-the-job trained, noncertified personnel who may be employed in nonregulated health care settings.

[c] Includes, but is not limited to: dietetic assistants, general assistants, operating room technicians, ophthalmic medical assistants, optometric assistants and technicians, orthopedic and prosthetic technologists, pharmacy assistants, podiatric assistants, vocational rehabilitation counselors, other rehabilitation services personnel, and other social and mental health services personnel.

SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Sixth Report to the President and Congress on the Status of Health Personnel in the United States, DHHS Pub. No.HRS-P-OD-88-1 (Rockville, MD: HRSA, June 1988), table 12-1.

1990 (*288*). Severe shortages are likely to occur if the current downward trend in graduates is not reversed. The number of graduates from radiography programs decreased by 24 percent from 1981 to 1988, and the number of graduates in nuclear medicine technology decreased by 44 percent from 1984 to 1988 (*673*).

- An increased demand for emergency medical technician (EMT) paramedics in hospital emergency departments due to the recent nursing shortage (*288*). Estimating current supply and predicting future supply of EMTs of all levels of training are difficult, since most EMTs are volunteers and no national data on the number of graduates of training programs are available.[62]
- A projected 75 percent increase in demand for certified medical record technicians from 1986 to 2000, due to the increasing complexity of the tasks these personnel must perform (*288*). After changes in Medicare hospital payment methods in 1983, hospitals reported substantially higher growth rates in employment of medical record technicians and administrators than had been seen in previous years. Demand for medical records personnel in nonhospital settings is expected to increase as well (*288*).

A national survey of hospitals conducted by the American Hospital Association found that personnel vacancy rates were highest for PTs (16 percent) and OTs (15 percent) (*673*). A 1986 survey of 167 Veterans' Administration facilities found high vacancy rates for PTs (23 percent), respiratory thera-

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[62] For more information on rural emergency medical personnel, see OTA's Special Report on Rural Emergency Medical Services (*623*).

Box 10-G—Provider Profiles: Allied Health Professionals (AHPs)

Clinical Laboratory Technologists/Technicians (CLTs)

CLT fields include generalist medical technology, blood bank technology, cytotechnology, hematology, histology, microbiology, and clinical chemistry (*288*). CLTs perform a wide array of tests used to help prevent, detect, diagnose, and treat diseases (*673*). Technologists are baccalaureate-prepared; technicians are associate-degree or certificate-prepared (*288*). Six States require technologists to be licensed (*673*); remaining States require only registration (*288*). Many CLT tasks are performed by nonlicensed, nonregistered individuals in unregulated environments (e.g., private physician offices) (*288*). The Bureau of Labor Statistics estimates that, in 1988, 71 percent of CLTs were employed in hospitals (*673*).

Physical Therapists (PTs)

PTs must graduate from an accredited program before taking their licensure examination (*288*). Three types of programs exist: baccalaureate programs, certificate programs for those with baccalaureate degrees in another field, and 2-year master's degree programs (*288*). PTs plan and administer treatment to relieve pain, improve functional mobility, maintain cardiopulmonary functioning, and limit the disability of people suffering from disabling injuries or diseases (*673*). All States require licensure for PT practice (*673*). In 1986, 38 States allowed PTs to evaluate patients without physician referral, and 14 States allowed PTs to treat patients without physician referral (*288*). In 1986, 40 percent of PTs worked in hospitals and 15 percent in independent or group practice (*288*).

Occupational Therapists (OTs)

OTs are trained through baccalaureate programs, post-baccalaureate certificate programs, or masters' programs (*673*). OTs work with disabled individuals to help them learn the skills necessary to perform daily tasks, diminish or correct problems, and promote and maintain health. In 1989, 35 States and the District of Columbia required licensure, 3 States required registration and had competency standards, and 4 States required certification for OT practice (*673*). In 1986, 35 percent of OTs worked in hospitals, 17 percent in schools, 10 percent in rehabilitative facilities, and the remainder in long-term care and home health settings (*288*).

Respiratory Therapists (RTs)

Accredited RT programs, which have grown in number in recent years, provide 2 years of training and grant either associate or baccalaureate degrees, depending on the student's previous educational background (*673*). RTs provide services ranging from emergency care for stroke, drowning, heart failure, and shock to temporary relief for respiratory disorders. They also treat patients after surgery to prevent respiratory illness (*288,673*). Certification is voluntary (*673*). In 1987, 18 States licensed respiratory care personnel, and licensure bills had been introduced in 10 others (*288*). In 1986, almost 90 percent of RTs worked in hospital settings, and the remainder were employed in nursing and home health facilities. Forty percent of RTs are men—a larger proportion than in many other allied health fields (*288*).

Dental Hygienists

Accredited hygienist programs include associate degree programs requiring 2 or more years of training and baccalaureate degree programs requiring 4 years of training (*288*). Dental hygienists remove stains and deposits from patients' teeth, take and develop x-ray films, apply fluoride, and make impressions of teeth. In some States, they may apply sealants to teeth, administer local anesthesia, and perform periodontal therapy. Licensure is required in all States. In most States, hygienists are required to work under the supervision of a dentist. The profession has been striving for greater autonomy, and legislation recently passed in Colorado allows dental hygienists to practice independently (*288*). In 1986, 99 percent of dental hygienists were women and over 90 percent were under age 44 (*673*). Ninety-five percent were employed in private dentists' offices (*673*).

Dietitians

Dietitians are baccalaureate-prepared professionals who have completed special courses in nutrition and have completed the practical training required by the American Dietetic Association for registration (*288*). Dietitians assess the nutritional needs of hospital patients and implement special diets. They also provide dietary counseling to groups and individuals. All certified dietitians must pass a national registration exam and participate in continuing education programs in order to maintain certification (*288*). Eight States require licensure, 5 require certification,

continued on next page

Box 10-G—Provider Profiles: Allied Health Professionals (AHPs)—Continued

and 3 require registration for the practice of dietetics (*673*). Most dietitians are employed in hospitals and nursing and personal care facilities (*288*).

Radiologic Technicians

The field of radiologic technology includes three distinct types of personnel. *Radiographers* receive 2 to 3 years of training in operation of x-ray equipment. They are licensed in 18 States (*288*). *Radiation therapists* receive 2 to 4 years of training and work primarily in oncology, preparing patients and administering ionizing radiation therapy. Fifteen States licensed these personnel in 1987, and another 10 States had enabling legislation but no licensure requirement. *Nuclear medicine technologists* receive 1 year of technical training in the use of radiopharmaceuticals in diagnosis and treatment. Seven States licensed these professionals in 1987, and another 10 had enabling legislation but no licensure requirement. In 1986, 60 percent of all radiologic personnel worked in hospitals, but employment in freestanding diagnostic centers is expected to increase in the coming years (*288*).

Emergency Medical Technicians (EMTs)

There are three levels of EMTs, distinguished from one another by the extent of training involved (*288*). All programs are certificate-granting, and they are offered by police, fire, and health departments as well as by medical schools, colleges, and universities. All 50 States have some type of certification procedure for EMTs, and 24 require national registration for one or more of the 3 levels of EMT practice (*288*). There were an estimated 65,200 paid EMTs in 1986, working in private ambulance services, hospitals, and police and fire departments (*288*). However, roughly two-thirds of EMTs are volunteers who work for rescue squads and local fire departments (*288*). In rural areas, an even larger proportion of EMTs are volunteers (*623*).

Medical Records Personnel

Medical records administrator programs are bachelor degree-granting and are based in colleges and universities (*288*). Medical records technicians typically hold associate degrees from community college-based programs. Many lower-level medical records personnel are trained on the job. No mandatory registration exists, although medical records administrators may choose to take a national registry exam. Three-fourths of all medical records personnel are employed by hospitals; others work in HMOs, nursing homes, and medical group practices (*288*).

Speech-Language Pathology and Audiology Personnel

To be certified, speech-language pathologists and audiologists must have completed a master's degrees in their field, although many States permit non-certified, baccalaureate-prepared practitioners to work in public school settings (*288*). Speech-language pathologists diagnose and treat speech or language disorders, and audiologists diagnose and correct hearing disorders. Increasing numbers of practitioners are entering independent private practice (*288*). Thirty-seven States require licensure for private practice in clinics or other nonschool settings (*673*). Over one-half of employed speech-language pathologists and audiologists in 1986 worked in schools, colleges, and universities, with the remainder in health care settings (*288*).

pists (16 percent) and radiation therapy technologists and technicians (15 percent) (*673*).

Surveys of AHP supply in a wider range of settings were conducted in North Carolina in 1986 (*445*). The highest vacancy rate reported was for OTs (21.5 percent). The vacancy rate for PTs increased from 8.7 percent in 1981 to 19 percent in 1986, and trends away from hospital employment and towards self-employment were noted. The vacancy rate for respiratory care personnel, 98 percent of whom were employed by hospitals in 1986, doubled from 1981 to 1986, from 9 to 18 percent. The vacancy rate for medical technology staff (medical technologists, medical technicians, phlebotomists, and laboratory assistants) was 16.5 percent, an increase over 4.6 percent in 1981. Ninety-four percent of all medical technology staff vacancies reported were in hospitals. The vacancy rate for medical records personnel was 11.9 percent, and the lowest reported vacancy rate (8 percent) was for radiologic personnel (*445*).

Multiskilled AHPs—AHPs became increasingly specialized during the 1960s and 1970s due to rapid technological advancements in the health care field. During the 1970s, however, concern about the supply of health professionals in rural areas led to an increased emphasis on the need for AHPs with skills in more than one field. Surveys have found that

Table 10-54—Provider-to-Population Ratios for Selected Allied Health Professions by Metropolitan/Nonmetropolitan Area, 1980

Occupation	Number per 100,000 residents		Nonmetro ratio as a percentage of metro ratio
	Metro	Nonmetro	
Dietitian	30.9	26.0	84%
Speech therapist	19.5	14.4	74
Health aide (excludes nursing aides)	138.5	99.9	72
Inhalation therapist	23.1	16.6	72
Dental assistant	75.2	53.2	71
Health record technician	7.2	5.0	69
Radiologic technician	46.3	31.0	67
Physical therapist	21.1	12.7	60
Clinical laboratory technician	120.5	68.9	57
Dental hygienist	23.1	12.3	53
Occupational therapist	9.3	3.5	38

SOURCE: Adapted from Institute of Medicine, Allied Health Services: Avoiding Crises (Washington, DC: National Academy Press, 1989), table 6-4.

many hospitals use multiskilled AHPs (*130,358a,424*), and that many more would do so if they were available (*424*). Training for multiskilled AHPs ranges from formal training programs that offer dual certification eligibility to informal on-the-job training. The range of skill combinations reported by hospitals that use multiskilled workers is great, but the three most common combinations are:

1. Respiratory therapist or technician and electroencephalography or electrocardiography technician;
2. Radiologic technologist and ultrasound technician; and
3. Laboratory technologist or technician and radiographer (*424*).

No national data on the supply of multiskilled AHPs are available. Survey data indicate that most multiskilled AHPs are employed in small not-for-profit and small non-Federal government hospitals (*424*). A recent study identified only 75 programs in the United States offering formal cross-training, but informal training for multiskilled AHPs has most likely been occuring for some time (*424*).

Rural Supply

Information regarding the national rural/urban distribution of AHPs is similarly scarce, and the available national data are not current. Table 10-54 shows the rural/urban distribution of selected AHPs in 1980. Personnel-to-population ratios were lower in rural areas in every AHP category and were especially low for PTs, OTs, clinical laboratory technicians, and dental hygienists (*288*). The greater concentration of health care facilities in urban areas may explain some of the differences, but some disparities—e.g., those among OTs—are too great to be explained so simply. The reportedly wide use of noncertified personnel to perform AHP tasks in nonregulated environments (e.g.. private physicians' offices) further confuses assessment of true AHP availability and distribution. Anecdotal evidence suggests that the most severe shortages of AHPs in rural health care facilities nationally are for PTs and OTs (*162,462,473*), although individual rural facilities report shortages for a wide array of AHPs.

A 1989 survey of small rural hospitals in Florida (*572*) found high vacancy rates for general radiographers (20 percent), laboratory supervisors (16 percent), laboratory technologists (13 percent), and respiratory therapists (8.6 percent). A large proportion of hospitals reported difficulties recruiting these personnel; PTs and physical therapy technicians were also often difficult to recruit. Rural hospitals had sharply higher vacancy rates than did their urban counterparts for laboratory and radiology personnel, but they had slightly lower rates for respiratory therapists (*572*).

Rural facilities often cannot support highly specialized AHPs on a full-time basis due to small population bases and low patient volume (see chs. 7 and 12). Precarious financial conditions make it difficult for some rural health facilities to compete for AHPs in the national labor market by raising salaries and offering other incentives. Strategies that have been suggested to overcome some of these barriers and ensure the adequate supply of AHPs in rural areas include:

- encouraging the development of multiskilled AHPs through training and increased flexibility of licensure laws for rural facilities,
- increased recruitment of students from rural areas who may be more likely to return to those areas to practice,
- increased opportunities for training at rural sites, and
- employer-initiated cooperative hiring of AHP staff by several health care facilities (*288*).

SUMMARY OF FINDINGS

Physicians

Overall physician supply has increased substantially over the past two decades. The number of MDs relative to the U.S. population more than doubled between 1963 and 1988—from 146 to 237 per 100,000 residents. ***The primary care specialties (particularly general and family practice) have seen the lowest increases.*** From 1979 to 1988, the number of primary care physicians per capita increased by 17.2 percent, compared with 30.2 percent for nonprimary care physicians.

Primary care physicians are twice as likely as nonprimary care physicians to practice in rural areas, but this may change due to recent increases in demand for primary care physicians in urban settings. Rural areas rely heavily on primary care physicians. In rural counties with fewer than 10,000 residents, for example, primary care physicians constitute 81 percent of all professionally active physicians. ***Future national shortages of primary care specialists are therefore likely to have a disproportionately negative effect on rural areas.***

The increasing supply of physicians has resulted in greater physician availability in counties of all sizes. However, overall increases in physician-to-population ratios have been lowest in the least populated counties. In 1988, rural counties still had fewer than one-half as many patient care MDs per capita as had urban counties. Rural counties with fewer than 10,000 residents had fewer than one-fourth as many patient care MDs per capita as urban counties. Rural residents travel for longer periods of time than do their urban counterparts to obtain medical care from physicians.

In 1988, all of the 111 counties (with a total resident population of 325,100) with no MD or DO were rural. In 1988, 29 percent of all rural residents were living in federally designated primary care HMSAs, compared with only 9.2 percent of urban residents (see ch. 11). Over 4,000 primary care physicians would be needed to eliminate shortages in these urban and rural HMSAs.

Despite increases in the proportion of physicians who are young (under age 35) in both rural and urban areas, rural physicians are still older than their urban counterparts. Most physicians in small rural counties are in solo practice.

Some rural areas rely heavily on DOs. Although they made up only 9.4 percent of the total U.S. physician population in 1986, DOs make up as much as 74 percent of total physician supply in some States' small rural counties.

Evidence suggests that the current supply of physicians in small rural counties is unstable. New medical graduates are increasingly indicating a preference for practice in large cities and suburbs, with fewer indicating a preference for small town and rural practice sites.

Midlevel Practitioners

Midlevel practitioners can provide primary medical care services in areas where no physician is available. NPs are about as likely as primary care physicians to practice in rural areas. The proportion of NPs who are in rural areas seems to be decreasing.

The belief that PAs are more likely than physicians to locate in rural areas cannot be confirmed because data on the rural/urban distribution of PAs are not available. The limited data available, however, suggest that the proportion of PAs practicing in small communities (under 10,000 residents) is decreasing. This is also true for CNMs. This shift may be due to an increased demand for these providers in urban settings.

On the national level, evidence suggests that current demand for NPs and PAs exceeds current supply.

CRNAs, who provide nearly 70 percent of anesthesia services in rural areas, are crucial members of the rural health care team in many hospital settings, but their supply is in danger. Precipitous decreases in the number of programs preparing CRNAs and the number of new CRNA graduates will adversely affect the future supply of CRNAs both nationally and in rural areas.

Nurses

RN- and LP/VN-to-population ratios are projected to decrease in coming years. The number of graduates from nursing programs has already begun to decrease, and this trend is expected to continue. RN-to-population ratios are the lowest in the South, Mountain, and Pacific regions. Furthermore, the proportion of employed RNs working in rural areas has decreased in recent years, and rural health care facilities may have increasing difficulty competing with urban facilities in RN recruitment.

While the number of RNs employed in hospitals has been increasing, the number of LP/VNs has been decreasing. Rural hospitals have markedly fewer RNs and higher RN-to-LP/VN ratios than do their urban counterparts. Analysis of regional nurse-to-population ratios shows that the regions with lowest RN availability are those with highest LP/VN availability, indicating that LP/VNs may be substituting for nurse positions that would otherwise be filled by RN.

Data on RN shortages (e.g., vacancy rates) are limited to the hospital and nursing home sector. RNs in smaller counties are more likely than RNs in large counties to be employed in nonhospital settings, yet little is known about the adequacy of RN supply in such settings.

Other Health Professionals

Numbers of practitioners in all other health professions examined in this report have increased over the past two decades. Recent data on rural/urban distribution are unavailable for most of these professions. For some professions, even national supply estimates are difficult or impossible to obtain due to lack of data collection.

Dentists

The distribution of dentists parallels that of physicians. Rural counties have substantially fewer dentists per capita than urban counties (35 *v.* 58 per 100,000 residents in 1987). Within rural counties, ratios decreased with county size, with the smallest rural counties (fewer than 2,500 residents) having only 15 office-based dentists per 100,000 residents.

The relative supply of general and pediatric dentists increased more in rural than in urban areas during the 1980s. However, future constraints on national supply due to recent and continuing decreases in the number of dental graduates may change this trend. There is a slight trend away from generalist and towards specialist practice among dentists; however, most dentists are still generalists. In 1987, 85 percent of dentists were in general practice, compared with 91 percent in 1970.

In 1988, 183 counties had no general or pediatric dentist. Of these, 181 were rural counties of fewer than 25,000 residents. An estimated 1,729 dentists are needed to eliminate shortages in almost 800 designated dental HMSAs, 72 percent of which are in rural areas. Over 8 million people resided in rural dental HMSAs in 1988.

Pharmacists

There are no data on U.S. rural pharmacist supply. State studies suggest that although some rural areas have few pharmacists, rural/urban differences in pharmacist distribution may not be as dramatic as those for other health professionals. An increase in the number of pharmacists relative to population is expected over the next three decades, but growth in demand for pharmacists may exceed growth in the national supply.

Optometrists

In many communities, optometrists are the only providers of primary vision/eye care. Their rural/urban distribution is not known, but a substantial proportion (34 percent) practice in communities of 25,000 or fewer residents. Although the number of applicants to schools of optometry has declined in recent years, enrollments have remained stable. The supply of optometrists relative to population is projected to increase over the next two decades.

Allied Health Professionals

Physical therapists are in short supply nationally, and the potential for serious future shortages exists in the fields of physical therapy, radiologic technology, occupational therapy, and medical record services. In most other allied health fields studied, downward trends in the number of training programs and graduates will need to be reversed to avoid future shortages.

Although no recent national data are available on the rural/urban distribution of AHPs, selected State data and anecdotal evidence suggest that rural settings currently have a disproportionately small share of AHPs, and they are likely to suffer more than urban settings in the face of future shortages. Evidence from these sources further suggests that some rural facilities are facing critical shortages of physical and occupational therapists. Radiologic and laboratory personnel are also in very short supply in some rural areas.

Multiskilled AHPs may be especially appropriate for small rural facilities. Although a small number of formal training programs exist, no national data on the supply of multiskilled AHPs are available.

Chapter 11

Identifying Underserved Populations

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Chapter 11

Identifying Underserved Populations

INTRODUCTION

That rural areas have a relative lack of health personnel is indisputable. Whether this difference results in inadequate access to health care is more difficult to determine.

The Federal Government uses two composite measures for defining areas in which the population has inadequate access to health services. Areas, population groups, and facilities that lack sufficient health personnel, as measured by population-to-practitioner ratios, are termed "Health Manpower Shortage Areas" (HMSAs). Areas and population groups that have inadequate access to health care, as measured by an index of four weighted indicators of health needs[1], are known as "Medically Underserved Areas/Populations" (MUA/Ps). Although it is possible for an area to be designated both as an HMSA and as an MUA, the two Federal designations are independently determined and must be applied for separately.

This chapter summarizes the development and uses of the Federal HMSA and MUA designations and presents the results of an OTA survey examining State activity and satisfaction with HMSAs and MUAs. (See app. D for a description of the survey.) In addition, the chapter examines the prevalence and uses of State shortage area designations. It concludes with a discussion of the concepts of "shortage" and "medical underservice" and a review of the literature on alternative designation criteria.

DESCRIPTION OF FEDERAL DESIGNATIONS

Health Manpower Shortage Areas

History

The first Federal shortage area designations were mandated in 1965 (Public Law 89-290) for the implementation of health professional loan repayment programs. Students in schools of medicine, osteopathy, dentistry, and optometry who served in designated shortage areas could have all or part of their educational loans forgiven. Shortage areas were designated by State health authorities according to population-to-practitioner ratio criteria established by the Secretary of the Department of Health, Education, and Welfare (DHEW).[2] Most of the designations were at the county level (i.e., for whole counties) and were in rural areas.

Legislation enacted in 1971 (Public Law 92-157, Section 332) extended the loan repayment program to cover non-Federal as well as Federal loans and shifted the responsibility for designating HMSAs from the States to the Secretary of DHEW. The 1971 legislation added podiatrists, pharmacists, and veterinarians to the list of eligible practitioners. The value of the shortage ratio for each of the professional groups was established at approximately 150 percent of the national mean population-to-active practitioner ratio for that group (except for physicians, where 200 percent of the national mean was used). Using these cut-off points, about two-thirds of all U.S. counties were designated physician shortage areas and about one-half were designated dentist shortage areas.

A list of "Critical Health Manpower Shortage Areas" (CHMSAs) was compiled following the passage of the Emergency Health Personnel Amendments of 1972 (Public Law 92-585). A population-to-primary care physician ratio of 4,000:1 was used to identify either county or subcounty areas as CHMSAs. The list was used to place National Health Service Corps (NHSC) personnel from 1974 to 1978.[3]

In 1976, Congress directed the DHEW (Public Law 94-484) to establish new criteria for designating HMSAs that would:

- permit designation of urban as well as rural areas;

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[1] The four indicators used to determine MUAs are the infant mortality rate, the percent of the population 65 and older, the percent of the population living in poverty, and the population-to-primary care physician ratio.

[2] The population-to-practitioner ratios chosen as shortage levels for purposes of loan cancellation were 1,500:1 for physicians, 3,000:1 for dentists, and 15,000:1 for optometrists. Special consideration was given to county or subcounty areas with inaccessible medical services, elderly or incapacitated practitioners, and particular local health problems.

[3] See ch. 13 for a description of the NHSC program.

Box 11-A—HMSA Designation Process

Requests for HMSA designation may be submitted to DHHS's Office of Shortage Designation by any individual, project, or agency. Copies of the requests for designation are then forwarded to local and State health planning agencies, State Governors, State health departments, and appropriate professional associations for review and comment. Following the comment period, the Office of Shortage Designation completes its evaluation of the request to determine if it satisfies the criteria for designation. Applicants are informed of the results of the evaluation by letter.

A record of all the designations made since 1978 is contained in a computerized file, the Shortage Area Data Base. This file is updated regularly to account for new designations, dedesignations, and changes in degree of shortage. By law, the list of HMSAs must be reviewed annually. Each year, DHHS sends the States the data it has on every county in the State and every designated primary care HMSA for the States to review. The States are notified that all primary care HMSAs that are 3 years old or older will be dedesignated unless the States supply updated information that warrants their continued designation (*341*). The most recent comprehensive review was the 1988-89 annual review, which emphasized the assessment of those primary care HMSA designations made or most recently updated during 1985. Because very few resources are currently tied to dental and psychiatric HMSAs, these designations are updated less frequently than primary care HMSAs—usually on a case-by-case basis when a dentist or a psychiatrist is being placed (*341*).

DHHS periodically publishes lists of primary care HMSAs by State in the Federal Register. The most recent list was published in November 1987 (52 FR 43992).

- broaden the concept of shortage to include indicators of a need for health services such as infant mortality, health status, and access to health services;
- permit population groups and facilities experiencing health personnel shortages to be designated; and
- establish priorities for assigning personnel to areas, population groups, and facilities with high needs (*682*).

The new criteria and designation, which replaced CHMSAs, were published as final regulations in November 1980 (45 FR 75996-76010). They included separate criteria for each of seven types of health manpower: primary care physicians, dentists, psychiatrists, vision care providers, podiatrists, pharmacists, and veterinarians. HMSAs were further categorized according to their degree of provider shortage.

The 1980 HMSA designation criteria are still used, but HMSAs are currently being designated for only three types of health professionals: primary care physicians, dentists, and psychiatrists.[4] Under the current regulations, HMSAs can be defined as: 1) urban or rural geographic areas, 2) population groups, or 3) public or nonprofit private facilities. The primary criterion for HMSA designation is still the population-to-practitioner ratio. The responsibility for designations rests in the Health Resources and Services Administration's (HRSA's) Office of Shortage Designation, within the Department of Health and Human Services (DHHS).[5] Box 11-A describes the HMSA designation process.

Current Designation Criteria

Primary Care HMSAs—Primary care physicians are defined for designation purposes to include family and general practitioners, general pediatricians, obstetricians and gynecologists, and general internists. *A geographic area* may be designated as having a shortage of primary medical care personnel if it meets the following criteria:

- it is a "rational" area for the delivery of primary medical care services;
- it has a population-to-primary care physician ratio of at least 3,500:1 (3,000:1 if the area has "unusually high need" for primary care services or "insufficient capacity" of existing primary care providers); and
- primary medical care manpower in contiguous areas are overutilized, excessively distant, or

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[4] Because of the lack of resources and resulting low designation activity, HMSAs for vision care providers, podiatrists, pharmacists, and veterinarians are no longer routinely designated or updated. Designation of nursing shortage areas is accomplished under a separate legislative authority (Title VIII of the Public Health Service Act).

[5] The Department of Health, Education, and Welfare was renamed the Department of Health and Human Services in May 1980.

otherwise inaccessible to the population of the area under consideration (45 FR 76001).

An area qualifying as "rational" for the delivery of primary medical care services need not conform to county boundaries; it may be part or all of a single county, two or more counties, or an urban neighborhood. In some cases a rational service area may extend across State as well as county boundaries. Although service area size may vary due to differences in population densities, HMSA criteria generally require the population centers of counties or contiguous counties seeking designation to be within 30 minutes travel time of each other. Although the specific definition of a rational service area is left up to the local applicant, Federal officials consider such factors as compactness, roads, natural barriers, sociodemographic and language barriers, and other isolating features when reviewing applications for designation (*682*).

Primary care practitioner counts include all non-Federal doctors of medicine (MDs) and doctors of osteopathy (DOs)[6] providing primary care in a service area and contiguous areas. The number of full-time-equivalent (FTE) primary care providers is computed to take into consideration the amount of time that is spent providing direct patient care (as opposed to administration, research and teaching duties) and to weight the care provided by interns, residents, graduates with foreign medical degrees, and practitioners who are semi-retired (45 FR 76001).

An area with a population-to-primary care physician ratio greater than 3,500:1[7] automatically qualifies for HMSA designation; an area with a ratio less than 3,000:1 is automatically disqualified. Within that range, the area may qualify if unusually high-needs criteria (e.g., infant mortality and poverty rates) or insufficient-capacity criteria (e.g., average waiting times for appointment and average waiting times at site of care) are sufficiently great to warrant the designation. (See table 11-1 for a list of the high-needs and insufficient-capacity criteria.)

Primary care HMSA priority groupings (also called "degree of shortage groupings") were developed to prioritize HMSAs so that scarce resources could be targeted to areas of highest need. Qualifying HMSAs are separated into four groups according to population-to-primary care physician ratios and indicators of high needs or insufficient capacity (table 11-2). The most critical shortage areas (group 1 HMSAs) are those areas that have no physicians or have a population-to-physician ratio greater than 5,000:1 and an indication of high needs or insufficient capacity.

Specific population groups within geographic areas may be designated as primary care HMSAs if they meet the following criteria:

- the area in which the population resides is rational for the delivery of primary medical care services;
- access barriers (e.g., language differences) prevent the population group from using the area's existing primary medical care providers; and
- the ratio of the number of persons in the population group to the number of primary care physicians serving the group is at least 3,000:1 (45 FR 76002).

Eligible population groups might include those with incomes below the poverty level, those eligible for Medicaid, medically indigent populations (defined as poverty population minus Medicaid eligibles), migrant workers and their families, native Americans, homeless populations, and other populations isolated as a result of language, cultural barriers, or handicaps. Population group designations differ from geographic area designations in that physicians not serving the specific population group are excluded from physician counts (e.g., physicians not serving Medicaid patients are not counted in the designations of Medicaid eligibles). Population group designations are made for partial-county areas, but not for whole counties.

Public or nonprofit private medical facilities may be designated as primary care HMSAs if they serve designated areas or population groups and have insufficient capacity to do so. Separate criteria are used for designation of Federal or State correctional

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[6] National Health Service Corps (NHSC) commissioned corps and obligated personnel are not included in physician counts. NHSC providers are counted if they decide to continue practicing in the area following completion of their obligated period of service. This presumably could cause the area to be dedesignated.

[7] The current criterion of a 3,500:1 population-to-physician ratio was chosen based on 1974 data because it represented a level approximately 50 percent worse than the median county level and identified those counties that fell into the bottom quartile of population-to-physician ratios (*682*).

Table 11-1—High Needs and Insufficient Capacity Criteria for Primary Care, Dental, and Psychiatric Health Manpower Shortage Areas (HMSAs)

Type of criteria	Primary care HMSAs	Dental HMSAs	Psychiatric HMSAs
Unusually high needs criteria	Must meet at least one of the following: 1. Fertility rates more than 100 births/year per 1,000 women aged 15-44 2. Infant mortality rate more than 20 infant deaths per 1,000 live births 3. Poverty rate more than 20%	Must meet at least one of the following: 1. Poverty rate more than 20% 2. Majority of the population does not have a fluoridated water supply	Must meet at least two of the following: 1. Poverty rate more than 20% 2. Youth dependency ratio (ratio of population under 18 to 18-64) greater than 60% 3. Aged dependency ratio (ratio of population 65+ to 18-64) greater than 60% 4. High prevalence of alcoholism
Insufficient capacity criteria	Must meet at least two of the following: 1. More than 8,000 visits/yr per physician 2. Unusually long waits for appointments 3. Excessive average waiting times at primary care providers 4. Excessive use of emergency facilities for routine care 5. Two-thirds or more of area's physicians not accepting new patients 6. Low annual office visit rate	Must meet at least two of the following: 1. More than 5,000 visits/year per FTE dentist serving the area 2. Unusually long waits for appointments 3. Two-thirds or more of area's dentists do not accept new patients	

SOURCE: Federal Register, vol. 45, pp. 75996-76010.

Table 11-2—Criteria for Primary Care Health Manpower Shortage Area (HMSA) Priority Groups

Group	Criteria if high needs are not indicated	Criteria if high needs are indicated[a]
1	No physicians	No physicians or population greater than 5,000 per physician
2	Population greater than 5,000 per physician	Population between 4,000 and 5,000 per physician
3	Population between 4,000 and 5,000 per physician	Population between 3,500 and 4,000 per physician
4	Population between 3,500 and 4,000 per physician	Population between 3,000 and 3,500 per physician

[a] Areas are considered as having "high needs" for primary health care services if they meet at least one of the "unusually high needs" indicators or at least two of the "insufficient capacity" indicators.

SOURCE: Federal Register, vol. 45, p. 76002.

facilities. Like population group designations, facility designations are made only for partial counties.

Dental and Psychiatric HMSAs—Criteria for the designation of geographic areas, population groups, and facilities as dental and psychiatric HMSAs resemble those for primary care HMSAs, with a few important differences (see table 11-3). The minimum population-to-practitioner ratios, for example, are 5,000:1 and 30,000:1 for dentists[8] and psychiatrists, respectively. Unusually high-needs and insufficient-capacity criteria for these types of HMSAs also differ from the primary care HMSA criteria (see table 11-1). Psychiatric facility designations may be made for State and county mental hospitals as well as for Federal and State correctional facilities.

Medically Underserved Areas/Populations

History

MUAs were authorized in 1973 by the Health Maintenance Organization (HMO) Act (Public Law 93-222). HMOs drawing 30 percent or more of their membership from MUAs were to receive preference for loans for initial operational costs.[9] The HMO legislation required the Secretary of DHEW to develop explicit criteria for the designation of medical underservice. To do so, DHEW funded a study that developed the Index of Medical Underservice (IMU) as the mechanism for determining MUA status. Of the various indices of underservice considered by the study panel for inclusion in the IMU, measures of poverty, agedness of the population, infant mortality, and health personnel were selected because data for these factors were nationally available and reliable (*329*). DHHS published the IMU criteria for use in designating and prioritizing MUAs in 1975 and 1976 (40 FR 40315 and 41 FR 45718).

Public Law 94-63 authorized grants to be made to projects to plan, develop, or operate community health centers (CHCs) that serve in designated MUAs. In 1978, to eliminate the need to apply for two separate designations pertaining to medical underservice, areas designated as primary care HMSAs were granted MUA designation status for the purpose of meeting CHC funding criteria. In 1980, these policies were repealed because HMSA designations were considered to be unstable and overly dependent on small changes in numbers of physicians or local population characteristics (46 FR 23817). However, the assumed greater ''stability'' of MUA designations cannot be assessed, since these designations have never been reviewed on a regular basis.

Federal legislation passed in Public Law 99-280 enabled State governors to request designation for Medically Underserved Populations (MUPs) that did not meet MUA criteria. The first two State requests for MUP designations were published in the Federal Register in March 1987 (52 FR 7215). The extension of the designation to specific population groups was prompted by situations such as that described by the Governor of Oregon in 1988, in

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[8] Unlike the calculation of FTE primary care physicians, the calculation of FTE dentists reflects productivity differences among dental practices based on the age of the dentist, the number of auxiliaries employed, and the number of hours worked per week.

[9] No new loans have been made or guaranteed under this provision since September 1986 (42 U.S.C. 300(e)).

Table 11-3—Basic Designation Criteria for Primary Care, Dental, and Psychiatric Health Manpower Shortage Areas (HMSAs)[a]

Type of designation/criteria	Primary care HMSAs	Dental HMSAs	Psychiatric HMSAs
Geographic area			
Rational area for service delivery	Within 30 minutes travel time and not part of another service area	Within 40 minutes travel time and not part of another service area	Within 40 minutes travel time and not part of another service area
Minimum population-to-practitioner ratio	Minimum 3,500:1 (3,000:1 with unusually high needs or insufficient capacity)	Minimum 5,000:1 (4,000:1 if unusually high needs or insufficient capacity)	Minimum 30,000:1 (20,000:1 if unusually high needs)
Health personnel in contiguous areas are inaccessible	More than 30 minutes travel time away or ratio greater than 2,000:1	More than 40 minutes travel time away or ratio greater than 3,000:1	More than 40 minutes travel time away or ratio greater than 20,000:1
Population group			
Rational area for service delivery	Within 30 minutes travel time	Within 40 minutes travel time	(not required)
Access barriers prevent group from using area's existing providers	Poverty, language/culture, lack of physicians accepting Medicaid	Poverty, language/culture, lack of dentists accepting Medicaid	Poverty, language/culture, lack of psychiatrists accepting Medicaid
Minimum ratio of population group-to-practitioners serving the population group	Minimum 3,000:1	Minimum 4,000:1	Minimum 30,000:1 (20,000:1 unusually high needs)
Facility			
Public or nonprofit private facilities	Facility serves designated areas or population groups and has insufficient capacity to do so. Separate criteria are defined for Federal or State correctional facilities.	Same as primary care HMSA	Same as primary care HMSA, but separate criteria for designation also exist for State and county mental hospitals

[a] Information on criteria specific to the type of practitioner designation is presented under the appropriate column.

SOURCE: Federal Register, vol. 45, pp. 75996-76010.

which a community's health access problems had been exacerbated by an economic depression following a decline in the timber and wood products industry (53 FR 10435).

In August 1989, the responsibility for MUA/P designations was moved within the Bureau of Health Care Delivery and Assistance from the Division of Primary Care Services, where grants to CHCs are made, to the Office of Shortage Designation, so that HMSA and MUA designations would be handled in the same office. Box 11-B describes the MUA/P designation process.

Current Designation Criteria

MUA Designations—MUAs are identified based on their IMU score, which considers the following four factors:

1. infant mortality rate,
2. proportion of the population over 65,
3. proportion of the population with incomes below the poverty level, and
4. ratio of population-to-primary care providers.

The IMU score for an area is the sum of weighted values for each indicator (41 FR 45718). (See table 11-4 for two hypothetical examples.) Values of the index range from 0 to 100, with lower scores indicating increasing medical underservice. The 1975 median IMU score of all U.S. counties was 62, and that value was used as the cut-off point for underserved areas. The geographic boundaries of MUAs may be county lines, or they may be subcounty boundaries such as townships and census tracts.

MUP Designations—MUP criteria have not yet been published. In general, MUP designations are based on the application of the IMU and an evaluation of the unusual local conditions and access barriers that led to the recommendation for designation in spite of failure to meet the IMU cutoff (*728*).

Current Status of Federal Designations

HMSAs

In 1983, HRSA projected that the number of counties that were wholly or partially designated as primary care HMSAs would decline from 1,501 in 1982 to 810 in 1994 (*683*). It also predicted that the number of primary care physicians needed to bring areas below the level of 3,500 residents per physician would decrease from 5,076 to 3,204 during the 12-year period. These predictions were based on the assumption that an increased supply of physicians would result in corresponding increases in underserved areas.

Box 11-B—MUA/P Designation Process

The original set of MUA designations was made by HRSA in 1976, based on a list of all U.S. counties and subcounty areas (including individual census tracts) that met the designation criteria (see text). States did not have to request designations. The original list did not consider whether designated areas were actually rational service areas (*728*).

The current MUA designation process requires that State agencies provide the Office of Shortage Designation with data on the four IMU components. Where exact data are unavailable for small geographic areas and population groups, extrapolation methods may be used. MUPs may be requested by State governors or local officials who submit data on the IMU indicators as well as a description of the unusual local conditions that affect the population group. After undergoing an initial staff review, MUA and MUP requests are listed in the Federal Register to provide interested parties with an opportunity to comment. DHHS then makes a final decision of whether to designate or deny the request and informs the applicant of the results by letter.

Despite the predictions, the total number of designated HMSAs has actually increased since 1982. As of December 31, 1988, there were 1,944 primary care HMSAs (30 percent more than the 1982 figure), 793 dental HMSAs, and 592 psychiatric HMSAs (table 11-5) (*665*). Of the primary care HMSAs, 67 percent (1,307) were located in rural (nonmetropolitan) areas. Of these rural HMSAs, 63 percent (821) were group 1 or 2 HMSAs and 37 percent (486) were group 3 or 4 HMSAs (*665*).

Although the number of people living in rural primary care HMSAs is slightly smaller than the number living in urban primary care HMSAs (16.5 million *v.* 17.4 million), this population is a disproportionately large percentage of all rural residents. In 1988, 29 percent of the U.S. rural population lived in designated primary care HMSAs, compared with 9 percent of the urban population (table 11-5).

Table 11-4—Application of the Index of Medical Underservice (IMU): Two Hypothetical Examples

IMU criteria	County 1 percent/ratio	County 1 weight[a]	County 2 percent/ratio	County 2 weight[a]
Infant mortality	11.40	24.8	17.30	19.5
Population 65+	8.60	19.9	14.10	18.7
Population below poverty	7.30	21.9	37.50	3.4
Primary care physicians per 1,000 population	.65	20.7	.15	2.8
IMU score		87.3		44.4
Qualifies as an MUA (IMU score < 62)		No		Yes

[a] Weights that apply to the associated percent or ratio, as listed in the Federal Register (41 FR 45718).

SOURCE: Office of Technology Assessment, 1990.

Both the number of dental and psychiatric HMSAs and the population living in those areas were higher for rural than for urban HMSAs. The disparity is especially apparent for psychiatric HMSAs; in December 1988, 61 percent of the rural population lived in designated psychiatric HMSAs (table 11-5).

Both the total number of primary care HMSAs and the percentage of primary care HMSAs that are in rural areas have been quite stable during the past decade (table 11-5). However, there has been some instability among individually designated areas (i.e., some areas have been newly designated and others dedesignated). Figure 11-1 illustrates the whole and partial counties that qualified as rural primary care HMSAs in 1987.

Table 11-6 shows the number of urban and rural primary care HMSAs, the total population in primary care HMSAs, and the number of physicians needed to remove designations, by region and State, as of September 1988. The South led the four regions with both the largest total number of primary care HMSA designations (849) and the largest number of nonmetropolitan primary care HMSA designations (623) (*666*). One-half of the U.S. population in rural HMSAs were living in the South.

Population group designations accounted for 12 percent of primary care HMSAs as of December 31, 1988 (*665*); 22 percent of the urban primary care HMSAs and 8 percent of the rural primary care HMSAs were for population groups (*667*). In the future, the Office of Shortage Designations expects to see an increasing number of population group designation requests, especially for Medicaid eligibles and the medically indigent (*340*).

To the extent that factors such as the lack of incentives and the lack of funds discourage areas from applying for Federal designations that would otherwise qualify, the number of designated HMSAs and MUAs underestimates the actual level of shortage. In 1986, for example, there were 95 nonmetro counties with a physician shortage (population-to-physician ratio greater than 3500:1)[10] that were not designated as HMSAs, even though they would presumably qualify (*511*). These counties were concentrated in the South and North Central regions. Also, since this analysis used county-based data, it did not capture partial-county areas that may have qualified for designation.[11]

MUA/Ps

In 1981, the most recent year for which comprehensive data are available, there were 2,440 designated MUAs (both whole- and partial-county) (*511*). Of these, 1,328 whole-county MUAs and 567 partial-county MUAs were in rural areas (*511*) (see figure 11-2). The highest proportion of whole-county MUAs were located in the South, and the highest proportion of partial-county MUAs were located in the North Central region (*511*).

These data on MUAs are not only outdated but are probably inaccurate, due to the fact that the initial MUA designations did not assess whether identified subcounty areas met the "rational service area" criterion (see box 11-B). Thus, some designated areas may not actually be underserved. Updated

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[10] These computations are based on the presence of doctors of medicine only and do not consider the presence of doctors of osteopathy.

[11] In 1988, 49 percent of all rural HMSAs were partial-county designations (*667*).

Table 11-5—Primary Care, Dental, and Psychiatric Health Manpower Shortage Areas (HMSAs): Number, Population, and Number of Providers Needed To Remove Designations, 1979, 1985, and 1988[a]

	December 31, 1979			June 30, 1985			December 31, 1988			
HMSA type	Number of designated areas	Population in designated areas	Number of providers needed to remove designations[b]	Number of designated areas	Population in designated areas	Number of providers needed to remove designations[b]	Number of designated areas	Population in designated areas	Percentage of U.S. population[c]	Number of providers needed to remove designations[b]
Primary care (total)	1,921	41,884,430	5,835	1,843	33,690,635	4,331	1,944	33,858,814	13.9	4,104
Nonmetro	1,350	19,010,058	2,587	1,314	17,661,218	2,044	1,307	16,477,146	29.0	1,794
Metro	571	22,874,372	3,248	529	16,029,417	2,287	637	17,381,668	9.2	2,310
Dental (total)	916	20,952,631	2,442	777	16,814,930	1,715	793	15,832,332	6.5	1,729
Nonmetro	735	11,711,480	1,459	581	8,975,971	835	574	8,698,800	15.7	890
Metro	181	9,241,151	983	196	7,838,959	880	219	7,142,532	3.8	839
Psychiatry (total)	218	19,224,017	--[d]	473	42,473,600	2,314	592	49,131,309	20.1	1,810
Nonmetro	160	--[d]	--[d]	317	--[c]	--[c]	396	34,006,866	61.0	1,137
Metro	58	--[d]	--[d]	156	--[c]	--[c]	196	15,124,443	8.0	673

[a] These figures include all HMSAs (priority groups 1-4), including HMSAs in the U.S. possessions.

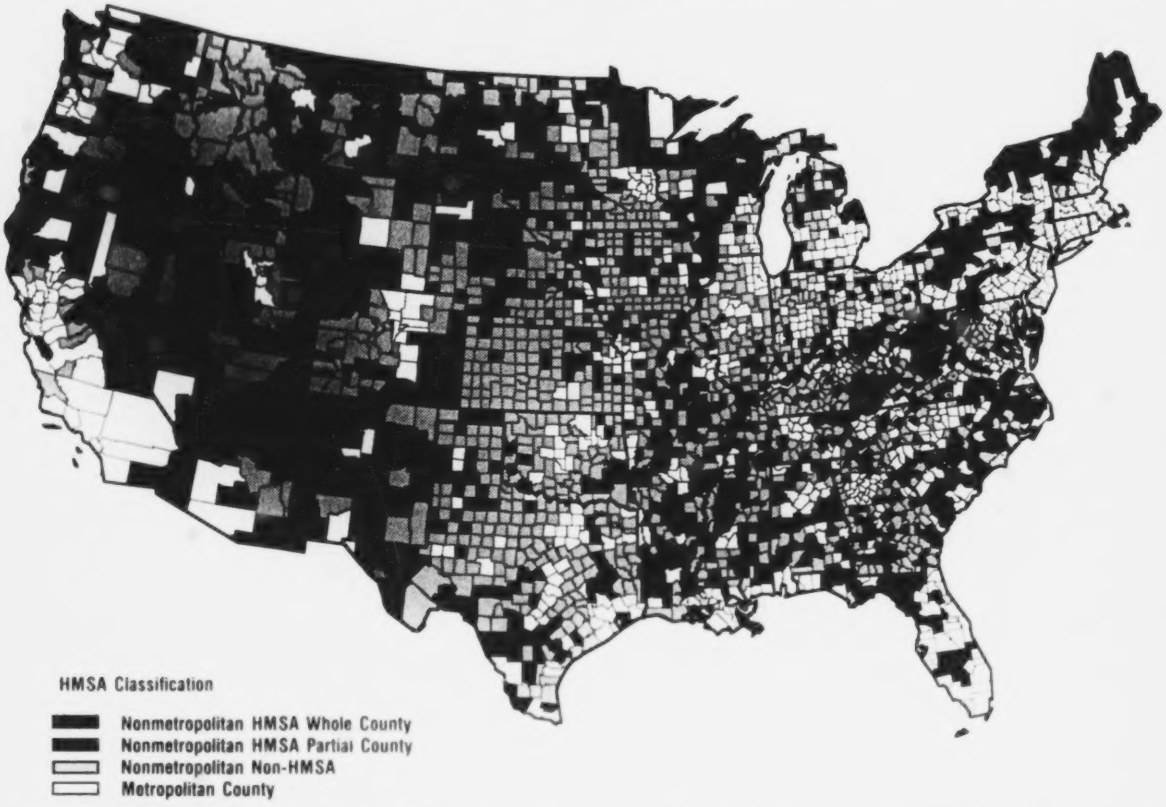
[b] The number of additional providers needed to dedesignate all HMSAs, as follows: For primary care HMSAs, the number of additional primary care physicians (general/family practice, general internal medicine, general pediatrics, obstetrics/gynecology) required to achieve a population-to-primary care physician ratio of 3,500:1 (3,000:1 where high needs are indicated); for dental HMSAs, the number of additional dentists required to achieve a population-to-dentist ratio of 5,000:1 (4,000:1 where high needs are indicated); for psychiatry HMSAs, the number of additional psychiatrists required to achieve a population-to-psychiatrist ratio of 30,000:1 (20,000:1 where high needs are indicated).

[c] Based on 1987 population estimates.

[d] Data not available.

SOURCES: U.S. Department of Health, Education and Welfare, Health Resources Administration, Bureau of Health Professions, Division of Health Professions Analysis, "Selected Statistics on Health Manpower Shortage Areas as of December 31, 1980," Report No. 81-11, Rockville, MD, Feb. 26, 1981; U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Office of Data Analysis and Management, "Selected Statistics on Health Manpower Shortage Areas as of June 30, 1985," Rockville, MD; U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Care Delivery and Assistance, Office of Shortage Designation, "Selected Statistics on Health Manpower Shortage Areas as of December 31, 1988," Rockville, MD; U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Office of Data Analysis and Management, Rockville, MD, unpublished data from the Area Resource File provided in 1989 and 1990.

Figure 11-1—Health Manpower Shortage Areas (HMSAs), 1987 (by nonmetropolitan county, 1986)


HMSA Classification
Nonmetropolitan HMSA Whole County
Nonmetropolitan HMSA Partial County
Nonmetropolitan Non-HMSA
Metropolitan County

SOURCE: T.C. Ricketts, Rural Health Research Center, University of North Carolina, Chapel Hill, NC, under contract to the Office of Technology Assessment, 1989. Data from the Area Resource File, Bureau of Health Care Delivery and Assistance, Health Resources and Services Administration, U.S. Department of Health and Human Services.

figures cannot be determined in any case, because the existing MUA database is configured in such a way that subcounty MUAs may be double-counted. As of June 1990, a total of 13 MUP designations had been made (*728*).

USES OF DESIGNATIONS

Federal Uses

National Health Service Corps

The principal Federal program using HMSA designations is the National Health Service Corps (NHSC), which places both volunteer and obligated health care practitioners (mostly physicians) in HMSAs (see ch. 13). As there are many more HMSAs than NHSC scholarship obligated providers, loan repayment participants, and nonobligated providers (i.e., volunteers), a national vacancy list is prepared by the Federal Division of NHSC[12] that includes the most needy of the designated shortage areas.

To be included on this vacancy list, a site must be part of a system of care, be located in a currently designated HMSA, and need at least one FTE practitioner before it would be dedesignated (*664*).[13] The degree of shortage (priority grouping) of the HMSA is one of seven criteria that are used to

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[12] The Federal Division of NHSC is located in HRSA's Bureau of Health Care Delivery and Assistance (see app. I).

[13] Rural primary care HMSAs needing less that one FTE practitioner before dedesignation would occur may be considered for the assignment of nurse practitioners, other midlevel practioners, and in some cases for the placement of a physician (*664*).

Table 11-6—Characteristics of Metropolitan and Nonmetropolitan Primary Care Health Manpower Shortage Areas (HMSAs), by Region and State, Sept. 30, 1988

Geographic area	Number of primary care HMSAs[a]		Total population in HMSAs		Number of physicians needed to remove designation[b]	
	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro
United States[c]	635	1,280	17,173,563	14,183,882	2305	1570
Northeast	147	84	4,509,819	741,387	412	77
New England	52	24	951,162	100,789	120	14
Connecticut	10	0	130,424	0	22	0
Maine	6	17	40,178	62,446	5	9
Massachusetts	24	1	583,847	5,306	73	0
New Hampshire	2	1	33,618	2,616	5	1
Rhode Island	8	0	146,095	0	14	0
Vermont	2	5	17,000	30,421	1	4
Middle Atlantic	95	60	3,558,657	640,598	292	63
New Jersey	12	0	736,677	0	36	0
New York	46	31	1,766,304	325,671	163	31
Pennsylvania	37	29	1,055,676	314,927	93	32
Midwest	122	319	3,907,546	3,730,108	577	454
East North Central	91	139	3,387,761	2,118,938	527	297
Illinois	27	24	1,634,575	342,253	268	25
Indiana	10	27	249,650	392,380	40	42
Michigan	14	34	657,229	471,648	101	44
Ohio	29	27	592,254	610,626	80	44
Wisconsin	11	27	254,053	302,031	38	31
West North Central	31	180	519,785	1,611,170	50	157
Iowa	6	17	76,783	218,021	7	16
Kansas	2	14	11,499	132,193	0	7
Minnesota	8	17	113,329	129,870	9	7
Missouri	10	49	258,750	628,049	30	66
Nebraska	2	21	23,449	149,437	2	13
North Dakota	2	26	31,006	171,254	2	24
South Dakota	1	36	4,969	182,346	0	24
South	226	623	6,228,126	7,836,845	864	771
South Atlantic	107	219	2,995,959	3,335,279	449	344
Delaware	2	1	49,626	31,700	5	1
Florida	35	32	1,027,893	392,995	180	55
Georgia	21	53	731,901	628,434	109	66
Maryland	8	5	274,757	72,169	37	5
North Carolina	8	37	426,406	775,498	37	93
South Carolina	15	29	264,723	465,648	43	34
Virginia	10	27	112,372	469,809	14	38
West Virginia	8	35	108,281	499,026	24	52
East South Central	49	162	1,318,070	2,492,083	168	237
Alabama	20	28	550,529	528,478	61	46
Kentucky	5	43	131,501	517,723	23	70
Mississippi	7	48	260,413	808,425	35	60
Tennessee	17	43	375,627	637,457	49	61
West South Central	70	242	1,914,097	2,009,483	247	190
Arkansas	10	37	96,601	306,452	23	25
Louisiana	19	31	405,468	713,318	55	61
Oklahoma	8	16	170,813	92,673	25	11
Texas	33	88	1,241,215	897,040	144	93

(continued on next page)

Table 11-6—Characteristics of Metropolitan and Nonmetropolitan Primary Care Health Manpower Shortage Areas (HMSAs), by Region and State, Sept. 30, 1988—Continued

Geographic area	Number of primary care HMSAs[a]		Total population in HMSAs		Number of physicians needed to remove designation[b]	
	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro
West	140	254	2,528,072	1,875,542	452	268
Mountain	40	167	350,255	1,283,060	87	190
Arizona	10	23	109,532	193,923	26	28
Colorado	8	19	67,787	83,410	9	12
Idaho	1	32	1,450	239,144	1	42
Montana	0	29	0	141,366	0	20
Nevada	12	8	59,069	39,159	19	6
New Mexico	6	27	96,352	351,362	29	57
Utah	2	15	14,680	130,705	3	13
Wyoming	1	14	1,385	103,991	0	12
Pacific	100	87	2,177,817	592,482	365	78
Alaska	3	11	42,855	61,914	9	15
California	65	27	1,806,804	230,455	284	16
Hawaii	2	0	18,760	0	6	0
Oregon	20	31	161,303	113,379	31	23
Washington	10	18	148,095	186,734	35	24

[a] Includes geographic, population, and facility designations.

[b] This is the number of additional primary care physicians needed to bring the population-to-primary care physician ratio below 3,500:1 (3,000:1 where high needs are indicated).

[c] These figures do not include HMSAs in the District of Columbia or in the U.S. possessions.

SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Care Delivery and Assistance, Office of Shortage Designation, Rockville, MD, unpublished statistics on Health Manpower Shortages as of September 1988, provided to OTA in 1989.

determine a site's ranking on the vacancy list. The seven criteria are:

1. infant mortality rate,
2. percent of population with incomes below 200 percent of poverty level,
3. HMSA degree-of-shortage grouping,
4. percent minority population served by the site or residing in the county where the site is located,
5. percent special population (including homeless, migrant and seasonal farmworkers, perinatal, persons with human immunodeficiency virus and acquired immunodeficiency syndrome (AIDS), substance abusers, and elderly persons) served by the site,
6. vacancies as a percent of total budgeted staff, and
7. degree of rurality (*664*).

A point system (0-4, with 4 indicating greatest need) is applied to each of the seven criteria, with the total points indicating a site's relative need and determining its ranking on the vacancy list (*664*).

There is a separate vacancy list for each primary care specialty and for emergency medicine (*270*). The opportunities vary by specialty. Family practitioners, for example, may get lists of relatively isolated rural sites, while other primary care specialists may get lists of placements in more populated areas (*716*). Placements of obstetricians are made only in areas where an "established and well-functioning system of care with appropriate cross-coverage" exists (*716*).

The highest priority sites on each of the vacancy lists become the "HMSA Placement Opportunity List" (HPOL)[14] for that specialty. The number of sites on each specialty HPOL corresponds exactly to the number of graduating scholarship recipients available for placement in a given year. In 1991, there will be 74 obligated professionals available for placement (*716*). The obligated NHSC participants select placements from the list and arrange interviews. Negotiation for a placement occurs between the NHSC participant and the community or organization that has the vacancy.

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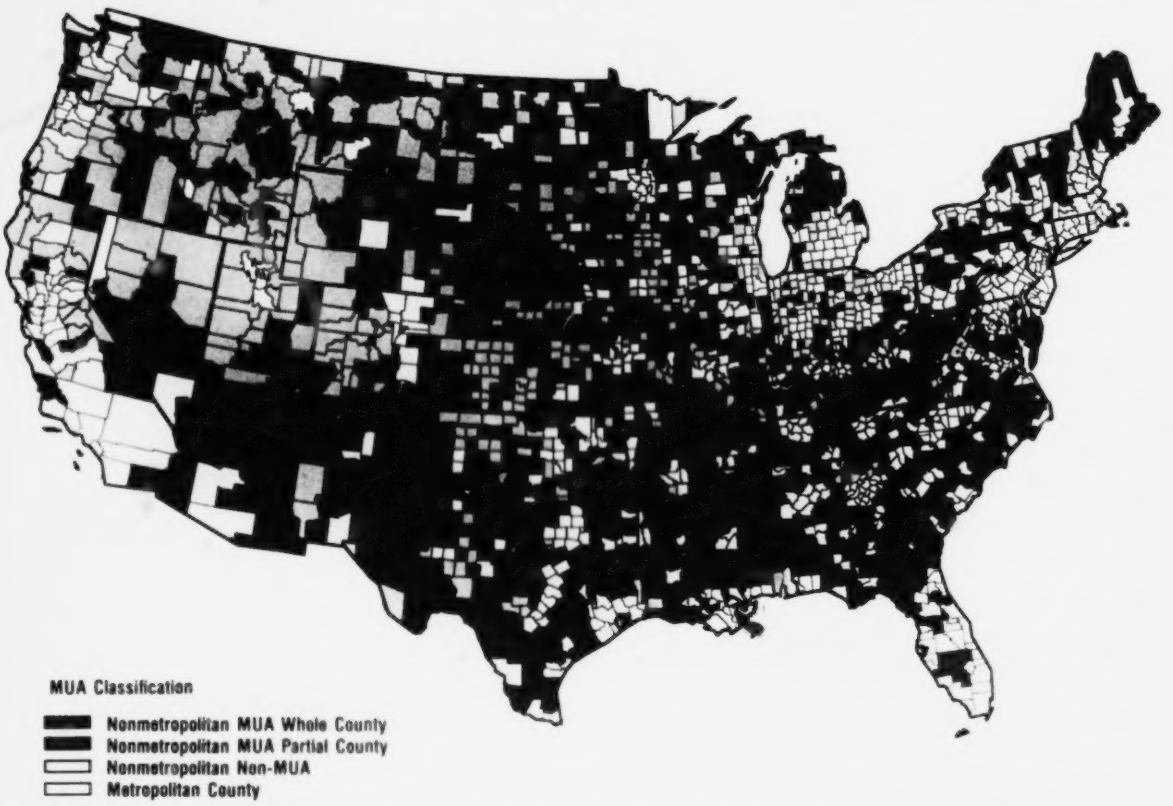
[14] The HPOL was first used in 1983 following congressional hearings suggesting that DHHS target NHSC resources to areas of greatest need (*270*).

Figure 11-2—Medically Underserved Areas (MUAs), 1981 (by nonmetropolitan county, 1986)


MUA Classification
Nonmetropolitan MUA Whole County
Nonmetropolitan MUA Partial County
Nonmetropolitan Non-MUA
Metropolitan County

SOURCE: T.C. Ricketts, Rural Health Research Center, University of North Carolina, Chapel Hill, NC, under contract to the Office of Technology Assessment, 1989. Data from the Area Resource File, Bureau of Health Care Delivery and Assistance, Health Resources and Services Administration, U.S. Department of Health and Human Services.

Following the determination of the HPOL, a loan repayment list is created from the sites remaining on the vacancy list. The number of sites on the loan repayment list is based on estimates of the number of providers the Division of NHSC hopes to recruit under the loan repayment program (the goal for 1991 is 900 providers) (*716*). Finally, a volunteer vacancy list is determined that includes all the sites on the vacancy lists that are not included on the HPOL or loan repayment lists. (Volunteers may, of course, practice at a higher-priority site if they choose.)

Other Programs

MUA/P designations have primarily been used to target Federal resources to CHCs and related programs (e.g., Migrant Health Centers (MHCs)) (Public Law 94-63). However, existing data[15] suggest that only one-fourth of nonmetro whole-county MUAs have a federally supported CHC or MHC, and the great majority of these are in the South (table 11-7) (*511*). Only 17 percent of nonmetro partial-county MUAs have a CHC or MHC.

Although HMSA and MUA designations were designed to meet the needs of the NHSC and CHC programs, they have since been used to implement a number of other Federal programs as well. Those linked to HMSA designations include the provision of funds for health professions training, the Area Health Education Center (AHEC) program, and the Medicare physician bonus payment program (see ch. 13 for program descriptions). Both HMSAs and MUAs are used to target resources under the Rural Health Clinics Act (Public Law 95-210). Providers

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[15] Based on 1981 MUA data and 1989 CHC/MHC data.

Table 11-7—Medically Underserved Areas (MUAs) With Federally Supported Health Centers, by Region, 1989[a]

Type of health center in MUA	Region	Metropolitan: Non-MUA	Metropolitan: Whole-county MUA	Metropolitan: Partial-county MUA	Nonmetropolitan: Non-MUA	Nonmetropolitan: Whole-county MUA	Nonmetropolitan: Partial-county MUA	Region totals	Facility totals
Community Health Center (CHC) only	Northeast	4	1	39	0	9	19	72	
	South	6	16	40	4	166	9	241	
	Midwest	3	1	27	4	37	23	95	
	West	0	0	16	8	28	8	60	468
Migrant Health Center (MHC) only	Northeast	5	0	3	1	0	1	10	
	South	1	6	5	1	28	6	47	
	Midwest	2	0	7	9	1	7	26	
	West	2	0	4	9	6	4	25	108
Both CHC and MHC	Northeast	2	0	10	0	1	0	13	
	South	1	7	15	1	47	2	73	
	Midwest	2	0	10	4	3	6	25	
	West	2	0	27	6	5	9	49	160
None	Northeast	26	1	26	22	5	42	122	
	South	34	82	116	68	654	76	1,030	
	Midwest	68	5	70	193	257	316	909	
	West	13	0	11	139	81	39	283	2,344
Totals		171	119	426	469	1,328	567		

[a] Centers data as of 1989; population as of 1986; MUAs as of 1981.

SOURCE: T.C. Ricketts, Rural Health Research Center, University of North Carolina, Chapel Hill, NC. Analysis of unpublished data (provided by the Health Resources and Services Administration) conducted under contract to the Office of Technology Assessment, 1989 and 1990.

Table 11-8—State Service and Shortage Areas Criteria, 1986

Criteria	Programs	States[a]
Health Manpower Shortage Area (HMSA)	16	14
HMSA and/or Medically Underserved Area (MUA)	2	2
Modified HMSA[b]	5	4
Population-to-physician ratios[c]	3	3
Community size[d]	8	8
Anywhere in State[e]	10	8
State criteria[f]	8	4
Other	9	8
Total	61	51

[a] States do not total to 50 because multiple programs in the State use the same criteria. Eight States with programs have no criteria.

[b] Maryland, Maine, New Mexico, and North Carolina add their State and local health, mental health, and corrections institutions to a list of acceptable practice sites.

[c] County-wide population-to-physician ratios are used by three States; Kansas (3,000:1), Kentucky (4,500:1), and South Carolina (2,000:1).

[d] The States with programs with placements according to community size are Alabama (5,000 population maximum), Arkansas (8,000), Georgia (15,000), Illinois (35,000), Missouri (6,500), Mississippi (10,000), Oklahoma (7,500), and Texas (30,000).

[e] Alaska, Arizona, Kansas (primary care specialists), Massachusetts, Maryland (except Montgomery County), Washington, West Virginia, and Wisconsin.

[f] California, Illinois, New York, and Oregon.

SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Office of Data Analysis and Management, Compendium of State Health Professions Distribution Programs: 1986, DHHS Pub. No. HRP-0906964 (Washington, DC: U.S. Government Printing Office, 1986).

must be located in clinics in rural HMSAs or MUAs to qualify to receive cost-based reimbursement for Medicare and Medicaid services (see ch. 3). Most HMSA-linked resources are tied to the primary care HMSA designation.

State Uses

Many States have adopted programs to promote the placement of health professionals in underserved areas (see ch. 12). Although some States have developed their own shortage area designation criteria, many States rely on Federal designations to identify areas and populations in need.

Of 113 State health professions distribution programs identified by the Federal Bureau of Health Professions in 1986, 61 used some type of shortage area criteria. About one-third of programs and States used the Federal HMSA criteria or slight modifications of them (table 11-8).

Three-fourths of the 45 respondents to a 1989 OTA survey of State HMSA/MUA activity (34 States) indicated that their State had health personnel distribution programs that used some type of shortage area designation (either an HMSA, MUA, or State designation) (table 11-9).[16] HMSA designations were most frequently used to implement AHEC programs, service-contingent loans and scholarships, health professions school loan repayment programs, and preceptorships. State designations were most frequently used for service-contingent loans and scholarships, placement programs, and targeted primary care training opportunities.

FEDERAL DESIGNATIONS: STATE ACTIVITY AND SATISFACTION

HMSAs

Activity

Interest in obtaining HMSA designations has not declined substantially despite a decline in the number of available NHSC personnel. In fact, in OTA's survey the percentages of States indicating that the demand for Federal primary care HMSA designations had *increased* or *remained the same* since 1985 were 71 and 82 percent for urban and rural areas, respectively (table 11-10). States indicat-

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[16] Ten respondents indicated that their States did not have any health personnel distribution programs using shortage area designations and one respondent answered "don't know."

Table 11-9—Presence of State Health Personnel Distribution Programs That Use Shortage Area Designations, 1989[a]

State distribution programs	Program present in State?[b] Y	N	NR	Shortage designation used[c] HMSA	MUA	State designation
Educational programs						
Area Health Education Centers	21	15	9	11	2	3
Targeted primary care training opportunities (e.g., residencies)	20	15	10	6	0	7
Seat purchases	5	20	20	1	0	0
Preceptorships	20	15	10	9	2	3
Other educational program	2	15	28	1	0	0
Financial incentives during training						
Service-contingent loans and scholarships	27	11	7	10	3	16
Other loans	4	20	21	1	0	2
Other scholarships	1	20	24	0	0	1
Other financial incentive	1	15	29	1	0	0
Aid in practice						
Placement	16	15	14	6	2	9
Guaranteed income	2	21	22	0	0	0
Loans	6	17	22	1	0	4
Health professions school loan repayment	13	19	13	10	4	4
Malpractice subsidy	5	20	20	1	1	2
Other aid in practice	3	14	28	1	1	2
Other programs	4	13	28	2	2	2

ABBREVIATIONS: Y = yes; N = no; NR = no response.

[a] Based on 45 States responding to OTA's survey of shortage and underserved areas (see app. D).

[b] Ten States reporting no State health personnel distribution programs, and one responding "don't know," were included as "no" for each specific program. Where States answered "yes" to some programs but left others blank, the blank responses were included in the "no response" column.

[c] HMSA, MUA, and State designations used for a particular program do not always add up to the number of States indicating that the program was present in their State. Some States use more than one designation criteria to implement programs, while other States did not indicate that any of the three criteria were used.

SOURCE: Office of Technology Assessment, 1990.

Table 11-10—Changes in Designation Activity for Metropolitan and Nonmetropolitan Primary Care HMSAs Since 1985 (as of 1989)[a]

	Number (percent) of States that had: Increased activity	No change	Decreased activity	Don't know/ does not apply
Total number of States:				
Metro HMSAs	12 (27%)	20 (44%)	11 (25%)	2 (4%)
Nonmetro HMSAs	26 (58%)	11 (24%)	7 (16%)	1 (2%)
Within regions:				
Northeast (7 States)				
Metro HMSAs	0 (0%)	4 (57%)	2 (29%)	1 (14%)
Nonmetro HMSAs	2 (29%)	2 (29%)	3 (43%)	0 (0%)
South (16 States)				
Metro HMSAs	6 (38%)	5 (31%)	4 (25%)	1 (6%)
Nonmetro HMSAs	11 (69%)	1 (6%)	3 (19%)	1 (6%)
Midwest (11 States)				
Metro HMSAs	1 (9%)	8 (73%)	2 (18%)	0 (0%)
Nonmetro HMSAs	5 (46%)	5 (46%)	1 (9%)	0 (0%)
West (11 States)				
Metro HMSAs	5 (46%)	3 (27%)	3 (27%)	0 (0%)
Nonmetro HMSAs	8 (73%)	3 (27%)	0 (0%)	0 (0%)

[a] Based on 45 States responding to OTA's survey of shortage and underserved areas (see app. D).

SOURCE: Office of Technology Assessment, 1990.

Table 11-11—Factors Affecting the Demand for Federal Primary Care HMSA Designations Since 1985 (as of 1989)[a]

	Number (percent) of States that had:				
Factor	Increased demand	Decreased demand	Had no effect	Don't know	No response
Need for NHSC personnel	31 (69%)	5 (11%)	6 (13%)	3 (7%)	0 (0%)
Availability of NHSC personnel	15 (33%)	23 (51%)	5 (11%)	2 (4%)	0 (0%)
Rural Health Clinics Program	19 (42%)	1 (2%)	11 (24%)	13 (29%)	1 (2%)
Medicare physician bonus payment	26 (58%)	0 (0%)	7 (16%)	12 (27%)	0 (0%)
State programs linked to HMSAs	18 (40%)	0 (0%)	19 (42%)	5 (11%)	3 (7%)
Other	10 (22%)	0 (0%)	1 (2%)	2 (4%)	32 (71%)

ABBREVIATIONS: HMSA = Health Manpower Shortage Area; NHSC = National Health Service Corps.

[a]Based on 45 States responding to OTA's survey of shortage and underserved areas (see app. D).

SOURCE: Office of Technology Assessment, 1990.

Table 11-12—State Satisfaction With the Federal Primary Care Health Manpower Shortage Area (HMSA) Designation Process, 1989[a]

	Number (percent) of States that were:			
	Satisfied	Dissatisfied	Don't know/no opinion	No response
Criteria	28 (62%)	16 (36%)	1 (2%)	0 (0%)
Application process[b]	32 (74%)	11 (26%)	0 (0%)	0 (0%)
Review process	30 (67%)	13 (29%)	0 (0%)	2 (4%)

[a]Based on 45 States responding to OTA's survey of shortage and underserved areas (see app. D).

[b]The two States that have not filed an HMSA application since 1985 were not asked to evaluate the application process. Thus the total number of States answering this question was 43.

SOURCE: Office of Technology Assessment, 1990.

ing an increase in designation activity were most likely to be located in the South or the West. Forty-three of 45 responding States had filed at least 1 HMSA application since 1985, but trends in designation activity varied considerably among States.

Factors cited most often as contributing to increased demand for HMSAs since 1985 were:

- *need* for NHSC personnel (31 States);
- Medicare physician bonus payment (26 States);
- Rural Health Clinics program (19 States); and
- State programs linked to HMSA designations (18 States) (table 11-11).

Ironically, the factor cited most often as decreasing HMSA demand activity was the *availability* of NHSC personnel (23 States).

Satisfaction With HMSA Designations

Criteria—In OTA's survey, most States (62 percent) were satisfied with the criteria used to designate Federal primary care HMSAs (table 11-12). Overall, respondents indicated that HMSA criteria were generally relevant, well-defined, and workable. Aspects of HMSA criteria that respondents thought were good and should be retained included:

- high needs criteria (9 States),
- population-to-physician ratio (7 States),
- consideration of distance and travel conditions (6 States),
- the "rational service area" concept (4 States),
- consideration of contiguous area resources in assessment of the availability of physicians (3 States), and
- focus on special population groups (2 States).

For the substantial minority of States (36 percent) that were dissatisfied with the criteria, the most common criticism was that the present cut-off point of 3,500:1 for the population-to-primary care physician ratio is too high (13 States). Suggested cut-off points ranged from 2,000:1 to 3,000:1. Related suggestions to improve the identification of primary care personnel shortage areas concerned the productivity and actual availability of physicians counted. Three respondents suggested discounting elderly physicians before they retire. Several respondents suggested excluding physicians whose services are not available to the general public (e.g., physicians located in mental hospitals or on military bases). Other areas of dissatisfaction with Federal HMSA designations that were listed by respondents included:

- lack of specialty shortage area designations, especially for obstetricians (12 States),
- lack of discrimination in the calculation of physician counts between physicians who serve Medicaid patients and physicians who do not (6 States),
- ambiguity of the rational service area criteria (4 States), and
- problems designating special population groups (e.g., the indigent, the homeless, AIDS patients, and minority groups) (4 States).

While nine respondents specifically mentioned the high-needs indicators as a very positive aspect of the HMSA criteria, some suggested improvements such as eliminating the fertility criterion, substituting unemployment rates or per capita income for poverty level, and changing the weighting of the infant mortality criterion.

Difficulty designating frontier areas was the most commonly listed problem associated with health personnel shortages in rural areas of the States. Other problems characteristic of rural areas included the application of the "rational service area" criterion, inadequacies of distance and travel time criteria, and severity of specialty shortages in rural areas.

HMSA Priority Groups—There was considerable disagreement among survey respondents regarding the usefulness of the primary care HMSA priority groupings. Over one-half of the respondents agreed that they are a good measure of HMSAs' relative degrees of shortage, while one-third disagreed. Over 40 percent of States did *not* believe that Federal resource allocation was correlated with the priority groups.[17] Several respondents felt strongly that the priority groupings did not reflect the States' primary care personnel needs and should be eliminated. Others commented that groupings would be more meaningful if other changes were made in HMSA criteria (e.g., if criteria were more sensitive to specialty shortage areas, or if changes were made in the high needs categories). Four respondents noted that HMSAs with CHCs usually were assigned higher priority than HMSAs without Federal centers.[18]

Application and Review Processes—Most respondents indicated that they were satisfied with the HMSA application and review process (table 11-12). Federal staff were generally reported to be helpful, but one-third of respondents found long processing times to be a problem, especially for rural areas.

MUAs

Activity

Although 43 of 45 States responding to the OTA survey had filed an HMSA designation application since 1985, only 18 States indicated that they had filed an MUA application since 1985.[19] Most States reported that MUA application activity in both rural and urban areas has remained the same or decreased since 1985 (table 11-13). The *need* for CHCs was listed most frequently as having increased demand for MUA designation, while the *availability* of CHC funds was listed most frequently as having decreased demand for MUA designations (table 11-14).

Satisfaction With MUA Designations

Criteria—Many States in OTA's survey reported that they were unfamiliar with MUA designation criteria. Of respondents expressing an opinion about their satisfaction with the criteria used to designate Federal MUAs, slightly more were dissatisfied (16 States) than were satisfied (12 States) (table 11-15). Over one-third of respondents answered "don't know," "no opinion," or left this question blank. Several States suggested that Federal staff clarify the current relevance and utility of MUA designations.

Most respondents commented favorably on at least a few of the indicators of need. Changes suggested to improve the MUA designation criteria included:

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[17] Twenty-nine percent of the respondents thought resource allocation was correlated with HMSA priority groups and 29 percent responded "don't know," "no opinion," or left the question blank.

[18] This is probably a reflection of an NHSC policy that gives priority to federally funded CHCs for the placement of obligated personnel (see ch. 13).

[19] Twenty-four States indicated that they had not filed an application for MUA designation since 1985, one State responded "don't know," and two States left this question blank.

Table 11-13—Changes in Designation Activity for Federal Medically Underserved Areas (MUAs) Since 1985 (as of 1989)[a]

	Number (percent) of States that had:				
	Increased activity	No change	Decreased activity	Don't know/ does not apply	No response
Metro MUAs	4 (9%)	12 (27%)	12 (27%)	10 (22%)	7 (16%)
Nonmetro MUAs	3 (7%)	14 (31%)	11 (24%)	10 (22%)	7 (16%)

[a] Based on 45 States responding to OTA's survey of shortage and underserved areas (see app. D).

SOURCE: Office of Technology Assessment, 1990.

Table 11-14—Factors Affecting the Demand for Federal MUA Designations Since 1985 (as of 1989)[a]

	Number (percent) of States that had:				
Factor	Increased demand	Decreased demand	Had no effect	Don't know	No response
Need for CHCs	14 (31%)	0 (0%)	15 (33%)	5 (11%)	11 (24%)
Availability of CHC funds	7 (16%)	11 (24%)	12 (27%)	5 (11%)	10 (22%)
Rural Health Clinics Program	9 (20%)	0 (0%)	16 (36%)	9 (20%)	11 (24%)
State programs linked to MUA designation	3 (7%)	0 (0%)	22 (49%)	5 (11%)	15 (33%)
Other	0 (0%)	1 (2%)	0 (0%)	0 (0%)	44 (98%)

ABBREVIATIONS: CHCs = Community Health Centers; MUA = Medically Underserved Area.

[a] Based on 45 States responding to OTA's survey of shortage and underserved areas (see app. D).

SOURCE: Office of Technology Assessment, 1990.

Table 11-15—State Satisfaction With the Federal Medically Underserved Area (MUA) Designation Process, 1989[a]

	Number (percent) of States that were:			
	Satisfied	Dissatisfied	Don't know/no opinion	No response
Criteria	12 (27%)	16 (36%)	15 (33%)	2 (4%)
Application process[b]	2 (11%)	9 (50%)	6 (33%)	1 (6%)
Review process	2 (4%)	20 (44%)	16 (36%)	7 (16%)

[a] Based on 45 States responding to OTA's survey of shortage and underserved areas (see app. D).

[b] The 27 States that had not filed an MUA application since 1985 were not asked to evaluate the application process. The total number of States responding to this question was 18.

SOURCE: Office of Technology Assessment, 1990.

- updating the weighting factors attached to the four indicators of need (8 States),
- considering combining HMSA and MUA designations into one measure (7 States),
- incorporating factors that might be affecting access to care (e.g., the percentage of the population that is uninsured, on Medicaid, or a member of a minority) (6 States),
- replacing some criteria with other measures (e.g., low birthweight percentage instead of infant mortality, unemployment rates or personal income instead of poverty rates, and rates of chronic disease instead of percentage of elderly) (4 States), and
- reexamining the current applicability of the IMU cut-off score used to distinguish an MUA from a non-MUA (2 States).

Two States mentioned that the weighting factors associated with the proportion of the population that is elderly and the infant mortality rate tend to cancel each other out. Designating frontier areas was reported by five States to be a problem.

Application and Review Processes—Of the 18 States that had filed an MUA application since 1985, 9 reported dissatisfaction with the application process (table 11-15). Four respondents noted that they had received no response to designation requests and cited poor communication with Federal staff as a problem.

Most respondents who expressed an opinion were dissatisfied with the frequency of review (table 11-15), with suggested frequencies ranging from annually to every 3 to 5 years. Three States believed the optimal frequency would depend on the specifics of new modified MUA designation criteria and how resources were tied to MUA status.

Thirteen States suggested that criteria used for reviewing MUAs that have CHCs or other federally funded services should differ from criteria used for other MUAs. Several States raised the concern that when CHCs have a favorable impact (e.g., reduce infant mortality), this jeopardizes their MUA designation status. One respondent suggested that different MUA criteria be developed for initial designations and for those areas seeking redesignation.

State Designation Capability

OTA's survey also examined the opinions of the respondents regarding how well-equipped they were to conduct shortage designation activity in their States. Nearly three-fourths of respondents (33 of 45) reported that the withdrawal of Federal planning resources had a negative effect on the States' ability to prepare requests for HMSA/MUA designation. Respondents overwhelmingly linked the lack of staff available to prepare requests for designations to the withdrawal of Federal funds. The majority of respondents (35 States) reported that State and Federal resources were *not* adequate for maintaining an accurate and up-to-date list of health personnel shortage areas and medically underserved areas.

STATE SHORTAGE DESIGNATIONS: PREVALENCE AND USES

Federal HMSA and MUA designations provide a centralized and relatively uniform designation system, but they do so at the cost of being inflexible to State-specific priorities and needs. To fill in the gaps, some States have expanded on Federal designation criteria or created their own criteria to address particular problems. States that have developed their own criteria generally apply more lenient or more specific criteria in defining shortage areas.

In the OTA survey, State designation criteria were being used in almost one-half of the responding States (22 of 45), either alone or in conjunction with HMSA or MUA criteria, to implement State health personnel distribution programs. In describing criteria, two States reported that they used modified HMSA designation criteria, four States used specialty-specific population-to-provider ratios, and two States used a population-to-primary care physician ratio that was lower than the HMSA cut-off of 3,500:1. Another criterion used by two States was community size (e.g., an area could qualify if it had fewer than 15,000 or 10,000 residents).

A few States have developed more elaborate indicators of medical underservice. Michigan, for example, has expanded on the IMU to develop a new model designed to be more responsive to State economic conditions (*386*). The Michigan Primary Care Association (MPCA) model added two new variables (percentage of persons eligible for Medicaid and the aggregate unemployment rate) to the IMU and has a revised system of weights (table 11-16). The MPCA model puts the greatest emphasis on poverty and Medicaid eligibles, while the IMU emphasizes population-to-primary care physician ratios and infant mortality. The MPCA intends to use its model as one of the criteria in a State program to place physicians, nurse practitioners, and nurse-midwives in areas of need (*323*).

Over 40 percent (19) of States responding to the survey were defining shortage areas for physician specialties or for nonphysician health personnel. Eight respondents indicated that they were identifying shortage areas for all physician specialties, most using population-to-provider ratios specific to each specialty. Shortage designations for obstetricians were the most common designation described (eight States). Several States were either currently defining or were planning to define shortage areas for nurses. Other specialties for which States were designating shortage areas include psychiatrists, pediatricians, family practitioners, internists, and general practitioners.

When asked why States used their own criteria instead of Federal HMSA or MUA designations, respondents said they viewed their State criteria as a more accurate measure of need. Some respondents stated that their State designation criteria were addressing areas of specialty shortage, were more sensitive to needs of frontier and other rural areas, were more lenient than HMSA criteria, or were more timely.

Table 11-16—Comparison of the Federal Index of Medical Underservice (IMU) and the Michigan Primary Care Association (MPCA) Model[a]

Federal variable	IMU weight (percent)	MPCA weight (percent)
Percentage of persons below 100% of Federal poverty level..........	25.1	20.7
Five year infant mortality rate..................................	26.0	17.2
Percentage of persons age 65 and over............................	20.2	17.2
Primary care physician to population ratio.......................	28.7	13.8
Percentage of persons Medicaid eligible..........................	NA	20.7
Unemployment rate..	NA	10.4
	100.0	100.0

NOTE: NA = not applicable.

[a] The weights that appear in this table are those associated with least-needy extreme for each criterion (e.g., the IMU weight of 25.1 for percentage of population below the Federal poverty level is associated with 0% below poverty). (See 41 FR 45718-45723 for the complete weighting tables used for IMU computation.) Lower weights are associated with more critical need.

SOURCE: Michigan Primary Care Association, A Blueprint for Primary Health Care: Communities Building a Healthy Foundation, executive summary (Lansing, MI: November 1987).

Table 11-17—State Opinions on How Accurately Federal HMSAs and MUAs Reflect State Health Personnel Shortages, 1989[a]

	Yes	No	Don't know/ no opinion	No Response
State has areas/populations that have health personnel shortages or are medically underserved but are not designated as HMSAs or MUAs	38 (84%)	3 (7%)	3 (7%)	1 (2%)
State has areas/populations inappropriately designated Federal HMSAs/MUAs	8 (18%)	29 (64%)	8 (18%)	0 (0%)

[a] Based on 45 States responding to OTA's survey of shortage and underserved areas (see app. D).

SOURCE: Office of Technology Assessment, 1990.

Testifying to the limitations of the Federal designation criteria, over four-fifths of respondents (38 of 45) believed that there were areas or populations in their State that had health personnel shortages or were medically underserved but were *not* designated as Federal HMSAs or MUAs (table 11-17). Fourteen States had designated such areas as *State* health personnel shortage or medically underserved areas. These areas tended to be rural parts of the State, areas with specialty shortages (i.e., shortages of obstetricians) and nonphysician shortages, and areas where the population-to-physician ratios were below the Federal HMSA cut-off. State designated populations included Medicaid and indigent populations. When asked why these areas or populations were not federally designated, respondents replied either that the areas lacked incentives to apply (e.g., limited NHSC personnel availability) or that the State lacked financial resources and staff to nominate them for designation.

Seven States indicated that there were areas or populations in their States that were *inappropriately* designated as Federal HMSAs or MUAs (table 11-17). Several respondents speculated that inappropriate designations existed due to the lack of review of MUA designations.

States engaged in several other activities related to designating underserved areas (table 11-18). Forty percent of States (18 of 45) were delineating primary care service areas. The majority of States (32 of 45) were conducting special surveys of primary care providers to monitor shortage areas or underserved areas; one-third of these were doing so as a part of HMSA designation and redesignation

Table 11-18—Shortage Area Designation Activity, by State, 1989

State[a]	Has filed at least one primary care HMSA application since 1985	Has filed at least one MUA applications since 1985	Defines its own shortage areas for certain health practitioners	Delineates primary care service areas	Conducts special surveys of primary care providers
Alabama	X	X	X		?
Alaska	X	?			
Arizona	X		X		
Arkansas	X				X
Colorado	X	X			X
Delaware	X				X
Florida	X			X	X
Georgia	X		X	X	X
Hawaii	X	X			
Idaho	X				X
Illinois	X	X		X	X
Indiana	X		X	X	X
Iowa	X		X		X
Kansas	X	?	X	X	
Kentucky	X		X	X	X
Louisiana	X				X
Maine	X	X	X	X	X
Maryland	X		X		X
Michigan	X	X	X	X	X
Minnesota	X	?			
Mississippi	X		X	X	X
Missouri	X		X		X
Montana	X				
Nebraska	X	X	X	X	X
Nevada	X				
New Hampshire					
New Jersey	X				X
New Mexico	X	X		X	X
New York	X	X	X	X	X
North Carolina	X		X		X
Ohio	X	X			X
Oklahoma	X	X			
Oregon	X	X		X	X
Pennsylvania	X	X		X	X
Rhode Island	X				X
South Carolina	X	X	X	?	
South Dakota	X			X	
Tennessee	X		X	X	X
Texas	X	X			X
Utah	X		X	X	X
Vermont		X			X
Virginia	X	X			X
Washington	X	X	X		
West Virginia	X			X	X
Wisconsin	X				X

NOTE: X = yes; ? = don't know or no response; blank = no.

[a]Only the 45 States that responded to OTA's survey of shortage and underserved areas are included.

SOURCE: Office of Technology Assessment, 1990.

activities. Some States reported surveying each physician as a part of their relicensing procedure, and some States conducted annual surveys of CHCs, hospitals, or health departments. Other reasons for doing surveys included monitoring obstetrician and nursing shortages and determining the number of private physicians accepting Medicaid patients. One respondent reported that their organization was no longer able to conduct surveys because of the lack of staff time.

HMSAs AND MUAs: PROBLEMS AND ALTERNATIVES

There are two problems inherent in the identification and prioritization of health service shortage areas. First, the terms "shortage" and "underservice" are hard to define; second, the measurement of various indicators of shortage and underservice is constrained by the limited availability of accurate and current local data. Despite these problems, the Federal Government has pursued its efforts to designate needy areas since the late 1960s and has relied on HMSA and MUA designations to target Federal resources.

The distinction between HMSAs and MUA/Ps has not always been clear. The concept of medical underservice is broader than that of health manpower shortage, since the former relies on a number of indicators of need, while the latter is primarily concerned with underservice attributable to lack of health personnel (*339*). Much of the confusion associated with the purpose and validity of the Federal designations stems from the ambiguous meanings of the terms "shortage" and "medical underservice."

Shortage Area Designations

Federal policies to redistribute physicians through the NHSC program were based on the premise that relative physician shortages were associated with impaired access to care. The NHSC program was initially tied to CHMSA designations in the early 1970s to increase the number of providers in areas with a relative undersupply.

The concept of shortage was broadened by changes in the HMSA designation criteria established in 1978. Shortage was not only measured by the relative supply of providers to an area, but also by taking into consideration socioeconomic barriers to access and other indicators of need. The designation of population groups as HMSAs was an additional means of addressing the specific access problems that face certain populations.[20] Identifying what the indicators of shortage should be and deciding how they ought to be prioritized were major concerns in the development of HMSA criteria.

One point of criticism of HMSAs has been their reliance, despite these changes, on population-to-provider ratios. Critics have suggested that these ratios do not reflect differences between specialties in the total hours worked, allocation of time to different practice activities, and productivity (*718*).

In 1983, Berk and colleagues questioned whether HMSA criteria result in a valid distinction between areas with adequate access to medical care and those with inadequate access (*85*). They evaluated four measures of access to health care for populations residing in and out of HMSAs:

1. the likelihood of having any physician visits (in 1977),
2. the number of physician visits,
3. travel time to usual source of medical care, and
4. waiting time in the medical provider's office or place of practice.

The authors found that differences in access to health care were better explained by differences in income, racial composition, and insurance coverage than by differences in physician supply. Based on these findings, they suggested that criteria be developed that would more closely link factors limiting access and utilization with low levels of physician supply, and they concluded that the physician redistribution effort was "a relatively inefficient mechanism for reducing inequities in access to care."

In 1983, the criteria used to designate HMSAs were evaluated as was required by law (Public Law 97-35), and four alternative designation criteria were evaluated:

1. the IMU,
2. the Utilization Deficit Index (developed by researchers at the National Center for Health Statistics),
3. the Deaths Averted Index (developed by researchers at the Urban Institute), and
4. the Use/Need Index (also developed by researchers at the Urban Institute) (*682*).

While the HMSA criteria stress provider availability, the IMU considers both availability and health status measures, and the other three indices all emphasize health status and health care utilization. The shortage area designations that would be produced by the HMSA and alternative methods were compared and contrasted. The alternatives were assessed according to how well they ranked counties in terms of need, access, health status, utilization, insufficient capacity, and health personnel availability.

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[20] "Access" has been defined broadly as the absence of geographic, financial, and capacity barriers that reduce a population's ability to reach (travel to), afford (pay for), and obtain in a timely manner health services that are wanted or desired (*682*).

Although different groups of counties were identified by the different alternatives, all methods identified a core group of the same counties. These counties were predominantly poor, rural counties in the South (*682*). The HMSA criteria appeared to be the most effective in ranking counties by relative availability of health personnel—not surprising, since the other methods did not necessarily emphasize personnel availability.

In this 1983 evaluation, HRSA also evaluated the criteria used to determine "degree-of-shortage" groupings among HMSAs. The agency found that the priority groupings: 1) gave undue importance to differences in population-to-practitioner ratios and certain measures of unmet need; 2) did not consider the size of affected populations; and 3) did not take into account unmet demand or area attractiveness (*682*). Despite some efforts to develop better degree-of-shortage criteria, the original priority groupings continue to play a role in the allocation of NHSC personnel.

Underserved Area Designations

The lack of a generally accepted definition of medical underservice has generated considerable criticism. Wysong, for example, criticized the IMU for its failure to define medical underservice directly, noting that the IMU simply attempted to predict the assessments experts would make if they actually visited sites (*742*). Critics contend that the lack of any empirically verifiable concept makes the IMU difficult to interpret and also difficult to defend as a basis for policy formation (*682*).

Several studies examined how well the IMU identifies residents with poor access to health care. Kleinman and Wilson used data from the 1973 and 1974 Health Interview Surveys to determine whether residents of rural areas satisfying MUA requirements had poorer access to medical care than others (*321*). No difference was found between MUAs and "adequately served" areas in volume of physician visits per resident, and only a small difference was found in the proportion of residents with one or more visits per year. MUA residents used some preventive services less and nonsurgical hospitalization more. The authors concluded that there was a need for specific objective standards of appropriate care and that underservice should be defined as deviations from those standards.

Kushman evaluated the IMU as a predictor of the ability to obtain physician services using California Medicaid claims (*329*). He found that the IMU explained only one-fifth of the variation in the number of claims across counties. When nonwhite and urban populations were considered as independent variables in addition to the IMU, the regression equation explained nearly one-half of the variation in claims. Kushman concluded that the IMU did not adequately reflect barriers to physician services faced by nonwhite and rural persons and that programs using the IMU run the risk of misallocating resources toward whites and urban dwellers.

Other noted limitations of the IMU include the IMU's insensitivity to consumers' perceptions of health care needs and the way individuals select and utilize health services (*330*), the absence of a clear definition of "rational service area," and the lack of consideration of needs and available services in contiguous areas (*339*).

Criticisms that current measures of underservice may not be adequately identifying areas in greatest need prompted a 1987 study of the usefulness of health status, as measured by sentinel health events, to identify underserved areas (*55*). Sentinel health events are medical conditions that, by virtue of their presence or prevalence in a population, indicate a lack of access to acceptable-quality preventive and other primary health care. Examples of sentinel health events include dehydration in infants; measles, mumps, or polio in children; and advanced breast cancer or invasive cervical cancer in adult women. Identifying areas and populations that are potentially underserved involves calculating the relative rate of sentinel events among different areas or populations. The study found that sentinel health events were effective in identifying underserved urban areas, but results were inconclusive in rural areas. At present, the most promising use of sentinel heath events is as a supplement to existing methods, to identify certain populations groups and subgroups that may have impaired access (*55*).

SUMMARY OF FINDINGS

While there are no definitive criteria that define what constitutes the "adequate" supply of health care in given area, the Federal Government has developed measures of "shortage" and "medical underservice'' that attempt to identify areas and populations with a relative lack of health care.

As measured by personnel shortage, rural health needs remain high. Contrary to predictions, and despite overall increases in physician supply, ***the number of designated primary care HMSAs actually increased 30 percent between 1982 and 1988. In 1988, 29 percent of the U.S. rural population (16.5 million people) lived in designated primary care HMSAs.*** States continue to request new shortage designations. Where demand for designations has declined, States report that it has been due in part to the decreased availability of incentives linked to these designations (e.g., NHSC personnel and new CHC funds) and the lack of funds to engage in designation activity.

In general, States regard HMSA criteria as relevant and workable. Points of dissatisfaction include the cut-off point of 3,500:1 for the population-to-primary care physician ratio (which is often regarded as being too high), the lack of adequate consideration of the productivity and the actual availability of physicians, and the often long processing time associated with designation. The use of HMSA priority groupings as a means of allocating resources has also been challenged. The prioritization process is not as public as it could be. The criteria used to determine the HPOL list, on which NHSC personnel placements are based, have never been published.

Unlike HMSAs, MUA/P designations attempt to measure health underservice by considering primarily measures of health service demand rather than supply. ***Although the MUA criteria may well be a better measure of impaired access than the HMSA criteria, the Federal identification and administration of MUA/Ps has some major problems.*** Because MUAs have not undergone a regular review since 1981, they cannot be viewed as an accurate indication of the current level of medical underservice, either on an individual area or national basis. Other potential problems associated with MUA designations concern the use of IMU weights and cut-off point that have not been reexamined since 1976, the ambiguous status of MUA designations during the past decade, and decreases in the incentives for States to apply for MUA designation.

There appear to be a substantial number of areas and populations that have health personnel shortages or are medically underserved but are not designated as Federal HMSAs or MUAs. In 1986, there were 95 nonmetro counties that qualified as HMSAs based on whole-county population-to-physician ratios[21] but were not designated as HMSAs (*511*). It is also possible that a number of subcounty areas may have also qualified but not applied for HMSA designation. Four-fifths of respondents to OTA's survey (38 States) believed that there were areas or populations in their State that had health personnel shortages or were medically underserved but were not designated as Federal HMSAs or MUAs.

Some States have engaged in activities to help fill in the gaps where Federal designations do not adequately address special State problems. ***At least 22 States use their own designation criteria either alone or in conjunction with HMSA or MUA criteria, to implement State health personnel distribution programs.*** Examples of other State designation-related activities include defining shortage areas for physician specialties or for nonphysician health care providers, defining primary care service areas, and using State surveys of primary care providers to monitor health personnel shortages and medically underserved areas.

State criteria are generally more specific or more lenient than Federal criteria, and they are believed by the States to be more sensitive to the needs of rural and frontier areas, to specialty shortage areas (e.g., obstetricians), and to needs that must be met quickly. State shortages of resources and staff, however, have limited designation activities.

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[21] Includes doctors of medicine only.

Chapter 12

Problems in the Recruitment and Retention of Rural Health Personnel

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Chapter 12

Problems in the Recruitment and Retention of Rural Health Personnel

INTRODUCTION

The future supply of rural health professionals is dependent on a sufficient supply of professionals appropriately trained for rural practice, and their willingness to locate and remain in rural areas. Factors affecting health professionals' specialty and location choice fall into three general categories:

1. *personal factors* (e.g., work hours, social opportunities, spouse employment, and schooling for children);
2. *professional factors* (e.g., opportunities for professional consultation, community and professional acceptance, and opportunities for career advancement); and
3. *financial factors* (e.g., educational debts, income, and practice costs).

Although recent attention has focused on economic disincentives to rural practice, noneconomic issues also play a critical role in recruitment and retention of rural health professionals. For some professionals, the perceived amenities of rural practice outweigh its disadvantages. For others, the most attractive salaries would not compensate for the perceived drawbacks of rural areas. This chapter presents an overview of factors affecting health professionals' specialty and location choices. It also discusses more specifically some of the key problems in recruitment and retention of rural health professionals. The chapter is largely concerned with physicians because of the relative abundance of studies and data on physician recruitment and retention. Many physician recruitment and retention issues, however, apply generically to other health professionals as well.

FACTORS AFFECTING PHYSICIAN SPECIALTY CHOICE

Because rural areas rely so heavily on primary care physicians (see ch. 10), the recruitment of physicians into primary care is the first step in rural physician recruitment. The recruitment process thus begins in the earliest stages of medical education.

Critics assert that the current medical education system encourages specialty and academic practice and discourages students from pursuing primary care (*206,506,556,604,608*). It is commonly believed that medical school graduates are increasingly electing nonprimary care fields because these are more profitable. Although earning potential is not frequently mentioned by medical students as a motivator of specialty choice (*58,61*), a recent analysis suggests that it may be a factor (*180*). In 1987, the median net income of office-based family practitioners (FPs) and pediatricians was roughly one-half that of office-based ophthalmologists, diagnostic radiologists, orthopedic surgeons, and anesthesiologists. Net specialty income correlated positively with both the number of applications per available residency position and the percentage of available residency positions filled for various specialties (*180*).

Other factors may also be contributing to the current trend away from primary care specialties, including:

- the perception that primary care practice is less prestigious or less intellectually challenging than other specialties (*206,326*),
- the belief that primary care residencies and primary care practice are more demanding and require longer hours than other specialties (*61,312*), and
- the lack of positive role models in the primary care specialties (*206,506,556,604,608*).

The three factors most frequently mentioned by 1989 medical college seniors as the most important determinant of their specialty choice were intellectual content of the specialty (30 percent of graduates), type of patients encountered (16 percent), and physician role models in the specialty (12 percent) (*61*). Very few seniors indicated that their choice was based on the "prestige" of that specialty within the medical profession (*60,61*).

Over two-thirds of 1989 medical school seniors indicated that they had determined their current specialty preference during the third or fourth year of medical school (*61*). A substantial proportion (13 percent) indicated that they had chosen a specialty before entering medical school (*61*). About two-thirds of 1988 and 1989 seniors who indicated a specialty choice had changed their preference during medical school. In both years, those students had most frequently rejected the specialties of family practice, internal medicine, general surgery, and obstetrics/gynecology (*60,61*). The three reasons most commonly given for the decision against a previously considered specialty were excessive demands on time and effort, inconsistency with student's personality, and negative clerkship experiences (*60,61*).

A study of 1983 medical school graduates found that receipt of a Federal scholarship was the most powerful predictor of selection of a primary care specialty (*168*). This same study found that women and married students were more likely than others to enter a primary care field, and that high levels of student indebtedness were somewhat associated with preferences for nonprimary care specialties and intent to enter academic, research, or administrative positions (*168*).

Some States and regions send a relatively high proportion of their medical graduates into primary care. A study of 1983 medical school graduates (*544*) found that the percentage of graduates entering family practice residencies was highest in the Pacific (17.5 percent) and Mountain (16.1 percent) regions. Regions with the lowest percentages were New England (7.1 percent) and the Middle Atlantic (8.1 percent). In 7 States, at least 20 percent of graduates entered family practice residencies;[1] in 10 States and the District of Columbia, fewer than 10 percent did so.[2] New York, which continues to have the highest number of medical graduates per year of any State, sent only 3.2 percent of its graduates into family practice residencies in 1988 (*744*). For individual medical schools, percentages in 1983 ranged from 0.8 percent at Cornell University in New York to 34.2 and 38.5 percent, respectively, for the University of North Dakota and Oral Roberts University in Oklahoma (*544*). In general, private medical school graduates are less likely than public school graduates to choose a primary care specialty (*168*).

FACTORS INFLUENCING WILLINGNESS OF HEALTH PROFESSIONALS TO PRACTICE IN RURAL AREAS

In the overwhelming majority of studies reviewed by OTA, personal characteristics and professional concerns were found to be of greater influence than financial factors on the location choices of physicians. The concerns of rural physicians apparently have not changed appreciably over the years. A study of physicians practicing in rural areas in 1967 (*90*) found areas of concern similar to those identified by more recent surveys. Most physicians practicing in rural areas are satisfied with their jobs (*239,405,461*), although one study found even higher satisfaction rates among urban physicians (*239*).

Personal Factors

Preference for rural or urban practice location seems to depend more on a personal preference for rural or urban living than on specific characteristics of rural or urban settings (*239*). Rural upbringing is a major influence on the decision for rural practice (*71,90,142,144,165,239,280,313,507,592,719*), as is the preference for a rural lifestyle (*239,405,507*). From 1978 to 1986, however, the number of enrolled medical students from rural areas decreased by 31 percent while the total number of enrolled students remained essentially the same (*500*). This decrease was primarily due to a drop in the number of applicants from these areas (*500*).

Lower socioeconomic background (*124,238*), experience in the National Health Service Corps (*333*), and participation in a loan forgiveness program tied to service obligation (*372*) are also associated with choice of a rural practice location. Minority physicians are more likely to practice in areas with large minority populations, suggesting that the recruitment of minority medical students may help alleviate the critical medical manpower shortages in some of these areas (*507,669*).

The locations of both undergraduate and graduate medical education are also important determinants of physician practice location. An analysis of 1982 data found that 39 percent of all physicians were

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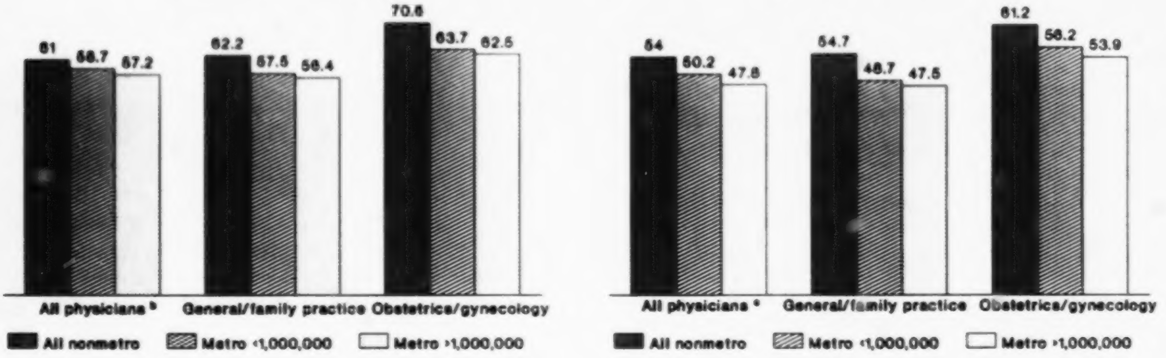
[1] These States were Mississippi, Colorado, New Hampshire, Washington, Iowa, North Dakota, and Arkansas (*544*).

[2] These States were New York, Nevada, Connecticut, Massachusetts, Rhode Island, Hawaii, Oregon, Georgia, North Carolina, and Missouri (*544*).

Figure 12-1—Average Number of Hours Worked and Average Number of Patients Seen by Physicians, by Specialty and Location, 1988[a]

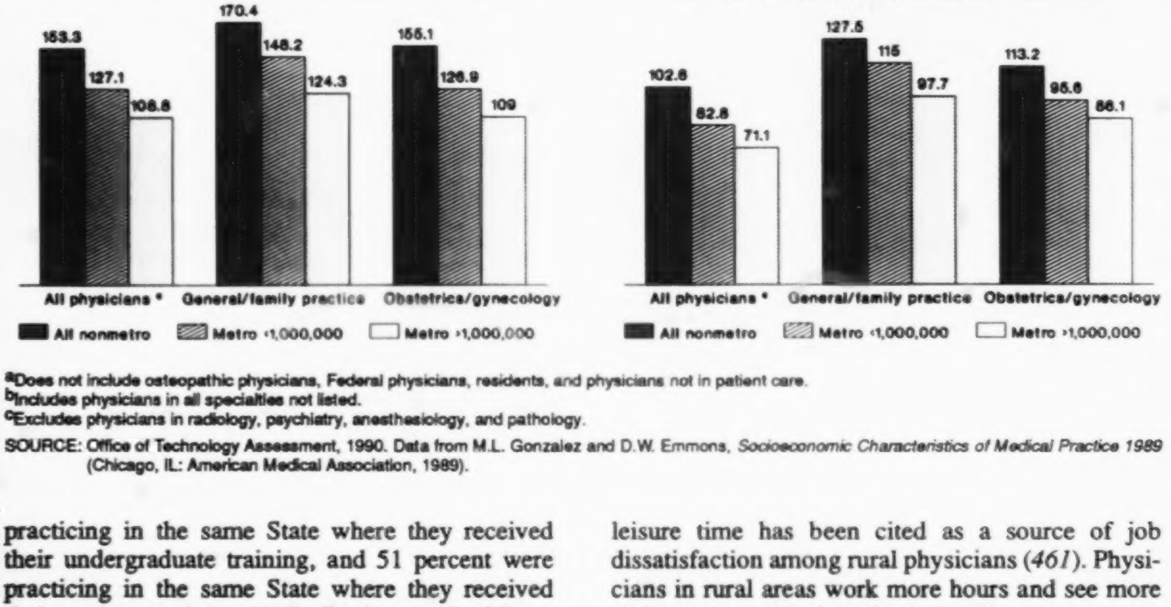
A. Mean number of hours spent per week in professional activities, 1988

B. Mean number of hours spent per week in direct patient care activities, 1988



C. Mean number of total patient visits per week, 1988

D. Mean number of office visits per week, 1988



[a] Does not include osteopathic physicians, Federal physicians, residents, and physicians not in patient care.
[b] Includes physicians in all specialties not listed.
[c] Excludes physicians in radiology, psychiatry, anesthesiology, and pathology.

SOURCE: Office of Technology Assessment, 1990. Data from M.L. Gonzalez and D.W. Emmons, *Socioeconomic Characteristics of Medical Practice 1989* (Chicago, IL: American Medical Association, 1989).

practicing in the same State where they received their undergraduate training, and 51 percent were practicing in the same State where they received their graduate training (*112*). Graduates of public or less prestigious medical schools and training programs were more likely than other graduates to remain in the State of their training. General and family practitioners (G/FPs) and obstetrician/gynecologists (OB/GYNs) were more likely than other specialists to practice in the State where they obtained their medical degree or specialty training (*112*).

Adequate personal time plays a significant role in physician location decisions (*405*), and lack of leisure time has been cited as a source of job dissatisfaction among rural physicians (*461*). Physicians in rural areas work more hours and see more patients per week than do their urban counterparts (figure 12-1) (*218*). For solo practitioners in isolated rural communities, hours of coverage may be continuous, with little or no opportunity for respite, vacation, or continuing education.

Available data on work hours of registered nurses (RNs) reveal little difference between rural and urban areas for these professionals (table 12-1) (*317*).

Another area of concern for rural health professionals is the availability of employment opportuni-

Table 12-1—Number of Hours Worked Per Week and Number of Weeks Worked Per Year by Registered Nurses, by County Population Size, 1988

County population size[a]	Mean number of weeks worked per year[b]	Mean number of hours worked per week[b]
All U.S. counties	49.9	34.5
More than 50,000 residents	49.9	34.5
50,000 or fewer residents	49.9	34.7
25,001 to 50,000 residents	50.1	34.9
10,001 to 25,000 residents	49.6	34.5
10,000 or fewer residents	49.7	34.4

[a] County population size does not necessarily reflect metro or nonmetro status.
[b] Number of weeks and hours in principal position.

SOURCE: D.A. Kindig, University of Wisconsin, Madison, WI, and H. Movassaghi, Ithaca College, Ithaca, NY, unpublished analysis of data from the 1988 National Sample Survey of Registered Nurses (provided by the Division of Nursing, Bureau of Health Professions) conducted under contract with the University of North Dakota Rural Health Research Center, Grand Forks, ND, 1989.

ties for their spouses. In general, small rural communities provide limited professional opportunities, and local communities often have to "recruit the spouse" when trying to attract a provider to the area. Forty-four percent of 1989 senior allopathic medical students were either married or engaged to be married (*61*). Of these students' spouses or spouses-to-be, 18 percent were also physicians, 59 percent were in other professional occupations, and 83 percent intended to work after their spouses had completed their medical education (*61*).

The availability of quality education for children and the availability of social and cultural activities also have been cited as possible disincentives to rural practice, although urban as well as rural physicians mention the lack of these amenities as disadvantages to their current practice location (*239*).

Professional Factors

Health professionals may be dissuaded from choosing a rural practice location due to either a perceived or an actual lack of professional opportunities and benefits. Unlike their urban counterparts, many rural health professionals do not have easy access to professional colleagues, consultations and second opinions, medical libraries, or continuing education. Moreover, rural primary care physicians may infrequently treat many conditions, and rural technical personnel may find it difficult to maintain competence in skills they rarely practice. Other professional concerns that may influence the location choices of health professionals—particularly nonphysicians—include opportunities for career advancement, ability to meet continuing education requirements for recertification, and statutory, regulatory, and reimbursement restrictions on professional autonomy and scope of practice. This section describes the barriers that some of these concerns create for health professionals in rural environments.

Physician Concerns

Ability to keep up with advances in medicine and availability of adequate support facilities can be key factors in physician location decisions (*405*), but these amenities tend to be present to a lesser degree in rural than in urban areas. For physicians who are already practicing in rural areas, factors associated with job *satisfaction* include the quality of physician-patient relationships, availability of good facilities, technical quality of medicine, practice autonomy (*239*), diversity of patients, and personal gratification derived from patient care (*461*). Factors associated with job *dissatisfaction* include heavy workload/long hours, lack of professional and educational resources or distance from other health facilities (*239,405,461*), bureaucratic interference (*239*), and meeting expectations of high-quality care (*461*). The perceived or actual lack of professional resources in rural areas may discourage some physicians from locating there.

Preference for Group or Salaried Practice—Trends toward group and salaried practice have serious implications for smaller rural communities. Young physicians today tend to prefer practice arrangements that guarantee them a fixed income and other desired benefits, such as regular hours, vacation time, and a close professional community

(*378*). A recent survey of 300 medical residents (*327*) found that 51 percent preferred group practice, 30 percent preferred employment in health maintenance organizations (HMOs), and only 1 percent preferred partnerships with established physicians. HMOs, however, are rarely located in rural areas (see ch. 5), and group practices may have trouble generating sufficient patient volume in very small communities.

American Medical Association (AMA) data confirm that young physicians are increasingly choosing salaried over private practice, but they also suggest that many of these physicians change from salaried to private practice before the fifth or sixth year of their career (*218*). It is not known whether physicians tend to remain in the same community or move to larger or smaller communities when they leave salaried practice. Increasing educational debts (see "economic factors" below) may be one reason behind the trend towards salaried practice, but this has not been shown empirically.

Impact of Hospital Closures on Physician Supply—The large number of rural hospital closures in recent years raises concerns about effects on the availability of rural office-based physicians. The presence of a hospital has been found to play a significant role in the initial location decisions of physician specialists but a lesser role for primary care physicians (*90,241,576*). Less is known about the effect of hospital closure on local physician supply. A recent study found no conclusive evidence that rural hospital closure reduced the availability of local office-based generalist or specialist physicians during the periods 1970-80 and 1980-85[3] (*273*). A recent Minnesota survey examined the issue prospectively. When asked whether the closure of their local hospital would affect their decision of where to practice, only 21 percent of rural physicians replied that it would *not* affect their decision, compared with 64 percent of physicians in the Twin Cities metro area and 50 percent of physicians in the Duluth and Rochester metro areas (*173*). Individual cases where hospital closure has endangered access to physician services have been reported (*267*).

Midlevel Practitioner Concerns

Factors influencing the location decisions of midlevel practitioners (MLPs)[4] have not been studied as extensively as those influencing physicians, but isolated studies indicate that professional concerns play a key role. In a recent survey of graduates from a certificate-level nurse practitioner (NP) training program in eastern North Carolina that places most of its graduates in rural practice, the four primary incentives for choosing a particular site were professional autonomy, good salary benefits, adequate medical backup, and educational opportunities (*337*). Many MLPs are required to participate in accredited continuing education programs in order to maintain licensure, but those practicing in rural areas may have difficulty accessing accredited programs. Federal and State restrictions on MLPs' scope of practice and on reimbursement for their services are key concerns for MLPs and are likely to influence their location decisions.

State Restrictions on Scope of MLP Services—The quality of care delivered by MLPs within their areas of competence has been described as at least equal to that provided by physicians (*617*), and some States allow certain MLPs to provide these services in independent settings. Other States, however, sharply limit the types of services MLPs may provide and the conditions under which they may be provided. Such diverse policies may influence the location decisions of MLPs.

The practice of NPs is governed by State nurse practice acts. States always require collaboration with or supervision by a physician, but they vary in their specific terms and conditions. NPs can and do practice without direct physician supervision in all States.[5] In 1990, 32 States allowed some form of prescriptive privileges for NPs, but only three States allowed NPs to prescribe medication without any cosigning or approval by a physician (*603*).

The professional autonomy of physician assistants (PAs) is much more limited. A fundamental difference is that PA practice is defined under State medical practice acts. Forty-nine States[6] and the

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[3] The author noted two possible limitations in the study method that may have affected the results: 1) the measurement of hospital loss may have been too imprecise, and 2) the availability of other hospital facilities nearby was not taken into account.

[4] Includes nurse practitioners (NPs), physician assistants (PAs), certified nurse-midwives (CNMs), and certified registered nurse anesthetists (CRNAs) (see ch. 10).

[5] Restrictive interpretation of nurse practice acts in one or two States may limit the scope of NP practice (*603*).

[6] The exception is New Jersey, where PAs are not legally recognized health professionals and are permitted to work only in Federal facilities (*16*).

District of Columbia allow PAs to provide medical services under physician supervision, but the nature and extent of the supervision vary. All of these States except Colorado permit some conditions under which PAs can practice without a physician physically present in the room. Fewer States allow PAs to practice with off-site physician supervision.[7] As of March 1990, 24 States and the District of Columbia allowed PAs to prescribe some medications (*192*).[8] Restrictions such as these prevent the utilization of PAs in rural satellite or remote practice settings.

Institutional and medical restrictions on scope of practice, liability coverage costs and availability, and stringent educational requirements present barriers to CNM practice (*24,617*). These barriers may be of particular concern to rural CNMs who practice in remote areas and therefore require a greater degree of autonomy. As of 1989, 5 States required a bachelor's or master's degree in nursing for nurse-midwifery practice, and 19 States required continuing education units for either RN or nurse-midwife license renewal (*25*). All nurse-midwives certified by the American College of Nurse-Midwives are required to complete continuing education units for certification renewal (*191*). Some rural CNMs have difficulty fulfilling continuing education requirements due to lack of recognized continuing education programs in some States and areas. These CNMs must travel to regional workshops to receive training, often at their own expense (*191*).

As with NPs and PAs, restrictive State (nurse) practice acts limit autonomous CNM practice in some States (*191*). Thirty-one States did not grant prescriptive privileges to CNMs in 1989, although some are now considering changes in their policies.[9] Moreover, some State hospital licensing laws prevent hospitals from allowing CNMs admitting privileges (*191*).

Reimbursement Disincentives for MLPs and Their Employers—A major barrier to the utilization of MLPs is the limited coverage for their services under Medicare, Medicaid, and other third-party plans (*617*). Reimbursement issues for MLPs are matters of economic concern for their employers and professional concern for the MLPs themselves, and they may play a role in MLPs' location decisions.

Table 12-2 summarizes coverage and direct payment for the services of MLPs under Medicare, Medicaid, and other third-party payers. MLPs receive third-party reimbursement for their services directly or indirectly (through their employers or supervising physicians). Reimbursement for MLPs under Medicare and Medicaid is limited to certain settings and conditions, and reimbursement by other third-party payers varies dramatically by State and by insurance plan.

Medicare—Although reimbursement of MLPs under Medicare Part B has expanded over the past two decades, it is still subject to many restrictions and, with few exceptions, payments are made to the employer rather than directly to the MLP. Legislation passed in 1982 (Public Law 97-248) authorized indirect Medicare reimbursement for PA and NP services delivered without direct physician supervision within HMO settings. Subsequent legislation authorized indirect Medicare reimbursement for PA services delivered under physician supervision in hospitals and nursing homes, for assistance during surgery, and for PA services delivered in rural Health Manpower Shortage Areas (HMSAs) (Public Laws 99-509, 100-203). Legislation in 1989 (Public Law 101-239) authorized indirect Medicare reimbursement for the services of NPs in skilled nursing facilities. Recent reports indicate an increased demand for PAs in certain hospital settings (see ch. 10). Medicare reimbursement for NPs and PAs in HMO settings may limit the supply of these practitioners in rural areas, since it increases the demand for NPs and PAs in HMOs' predominantly urban settings. Anecdotal reports indicate increased demand for PAs in some rural clinics following the 1987 amendments (*192*).

NPs, PAs, and CNMs in certified rural health clinics (RHCs) obtain indirect cost-based reimbursement under Medicare for their services.[10] Although RHC legislation was passed in 1977 (Public Law

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[7] According to the American Academy of Physician Assistants, PA practice in satellite or remote settings would be difficult if not impossible in at least five States due to language in or interpretation of medical practice acts. These States are Colorado, Louisiana, Mississippi, New Jersey, and South Carolina (*192*).

[8] In addition, six States which do not allow PAs to prescribe drugs do allow them to dispense certain prescription drugs (*192*).

[9] In 19 States and the District of Columbia, prescriptive privileges are authorized, but the scope of the authority varies greatly. In two States, CNM prescriptive authority has been challenged by the State Attorneys General (*191*).

[10] Services of clinical psychologists and social workers furnished in RHCs are also reimbursed by Medicare.

Table 12-2—Coverage and Direct Payment for Services of Midlevel Practitioners[a]

Third-party payer	Nurse Practitioners (NPs)		Physician Assistants (PAs)		Certified Nurse-Midwives (CNMs)		Certified Registered Nurse Anesthetists (CRNAs)	
	Coverage	Direct payment	Coverage	Direct payment	Coverage	Direct payment	Coverage	Direct payment
Medicare:								
Part A	No	No	No	No	No	No	No	No
Part B[b]	Some[c]	No	Some[d]	No	Yes	Yes	Yes	Yes
HMOs[e]	Yes	NA	Yes	NA	NA	NA	Yes	NA
State Medicaid programs[f]	Some States	A few States[g]	Some States	No States	Almost all States	Almost all States	Most States	At least 20 States
Medicare and Medicaid:								
Rural Health Clinics[h]	Yes	No	Yes	No	Yes	No	NA	NA
Private insurance[i]	Some States	Some States	No	No	Some States	Some States	Some States	At least 13 States

NOTE: NA = not applicable.

[a] "Coverage" means reimbursement is provided to the employer. "Direct payment" means that reimbursement is made directly to the practitioner. "Services" means services that are typically and characteristically provided by physicians. Most payment for midlevel practitioner services, whether direct or indirect, is at levels lower than a physician would receive for comparable services.

[b] Direct reimbursement for CRNA services was mandated in 1986. Direct reimbursement for CNM services delivered without direct physician supervision but in accordance with State practice acts was mandated in 1987.

[c] Indirect Part B reimbursement for the services of NPs in skilled nursing facilities was mandated in 1989.

[d] Medicare reimbursement for PA services delivered under physician supervision in hospitals, nursing homes, and as assistants during surgery was mandated in 1986. Medicare reimbursement for PA services furnished in rural primary care Health Manpower Shortage Areas was mandated in 1987. Payment is made to the supervising physician or to the employer.

[e] Prepaid payments to certain Health Maintenance Organizations (HMOs) for NP and PA services were mandated in 1982.

[f] States have the option of reimbursing for NP, PA, and CRNA services but are required to reimburse for the services of CNMs delivered without direct physician supervision.

[g] 1989 legislation required all States to reimburse directly for the services of pediatric and family nurse practitioners in all settings. The new policy is scheduled to take effect in June 1990.

[h] Clinics certified under Public Law 95-210 (see ch. 3). Reimbursement is indirect and is cost-based rather than prospective.

[i] Indicates whether States have laws that require or permit private insurers to cover or directly reimburse for the services of NPs, PAs, CNMs, and CRNAs.

SOURCE: Office of Technology Assessment, 1990.

95-210), implementation among States has been highly uneven. Over 2,000 counties in all 50 States qualify for RHCs,[11] yet in 1989 only 470 RHCs were certified in 37 States (table 5-15). In 8 States, each of which had more than 40 qualifying counties, there were no RHCs at all (table 5-15). Under the law, MLPs can work without direct physician supervision only within the proscriptions of State nurse and medical practice acts. Reasons for the lack of RHCs in some States may include restrictions on MLP scope of practice and resistance from the medical profession (*516*) or simply lack of awareness of the program. The RHC certification process can be lengthy and can cause substantial financial difficulty for some clinics (see ch. 5). The ability of clinics in rural HMSAs to obtain fee-for-service reimbursement from Medicare for PA services (see above) while seeking certification may ease the financial burden on these clinics, but clinics still cannot obtain such reimbursement for the services of NPs (*192*). (See chs. 3 and 5 for further discussion of the Rural Health Clinics Act and barriers to its implementation.)

Unlike most other MLPs, certified registered nurse anesthetists (CRNAs) may bill Medicare directly for their services. Direct Medicare reimbursement for CRNAs was mandated in 1986 (Public Law 99-509). The American Association of Nurse Anesthetists, however, believes that reimbursement is too low (*23*).

Medicaid—Legislation in 1980 (Public Law 96-499) required that States reimburse for CNM services under Medicaid, regardless of whether these services are provided under direct physician supervision. Legislation in 1985 (Public Law 99-272) further directed that CNM-operated birthing centers do not have to be administered by physicians in order to qualify for Medicaid reimbursement. Legislation in 1989 (Public Law 101-239) required States to provide direct reimbursement under Medicaid for the services of pediatric and family NPs, regardless of whether the NP is under the supervision of or associated with a physician or other health care provider (effective July 1, 1990). PAs, NPs, and CNMs in designated rural health clinics also receive indirect cost-based reimbursement under Medicaid (see above).

Excepting the previous provisions, States are not required to reimburse PAs and NPs under Medicaid, but at least one-half of States exercise their option to do so to some extent (*418*). The method of reimbursement in these States varies. Several States limit direct reimbursement to NPs to certain procedures, such as obstetrics. At least 20 States directly reimburse CRNAs under Medicaid (*601*).[12] Most other States also reimburse CRNAs under Medicaid, but the method of reimbursement may be indirect (e.g., through a hospital) (*601*).

Private Insurance—Private insurance coverage of MLP services varies both by individual insurance plan and by State. In some States, legislation either requires or allows third-party payers to reimburse for MLP services (table 12-2), but some plans reimburse in States where there is no mandate. Twenty-six States either allow or mandate direct private third-party reimbursement for NP services, and 7 others allow or mandate direct reimbursement for certified psychiatric NPs (*603*). NPs have succeeded in obtaining direct reimbursement from some private plans. As of 1989, 20 States had mandated private insurance reimbursement for CNM services, but the method of reimbursement varies (*25*). Most private third-party payers reimburse either directly or indirectly for CRNA services, and at least 13 States require direct reimbursement for their services (*601*).

Nurse Concerns

Rural nurses cite lack of opportunities for career advancement, low salaries, and increased responsibility for non-nursing tasks as sources of job dissatisfaction. The same factors have been associated with recent declines in applicants to nursing programs (*698*). Lack of professional autonomy (e.g., inability to influence their own practice environment and characteristics) is regarded by many as one of the key factors affecting nurse retention and job satisfaction (*232,262,310,370, 469,593,717,733,*). A study of nurses in rural Georgia hospitals found personal characteristics—including age, education, salary, marital status, and number of dependents—to be relatively unimportant predictors of rural hospital nurses' job satisfaction (*232*). The influence of these factors on those nurses' initial location decisions, however, was not studied.

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[11] This is an underestimation of the total number of qualifying counties, since it only includes qualifying *nonmetro* counties. Under Public Law 95-210, clinics in nonurbanized areas of metro counties can also qualify if the areas meet the criteria for designation as a Medically Underserved Area or a primary care HMSA (see ch. 11).

[12] This figure is based on a survey conducted several years ago, and more States may now be reimbursing directly (*601*).

Nurses in remote settings may be less likely than urban nurses to have opportunities for career advancement (e.g., upgrading from a licensed practical/vocational nurse to an RN or from an RN to an advanced nursing position) due to poorer access to education programs and less flexible work schedules. Nurses in more populated counties are more likely than those in less populated counties to be enrolled in nursing-related educational programs (table 12-3) (*317*). Rural RNs also spend more time in supervisory and administrative activities than do their urban counterparts (table 12-3) (*317*). Whether this difference is looked on favorably by RNs is not known, but it does diminish the amount of time these nurses spend in direct patient care (table 12-3).

RNs in less populated counties are less likely than others to have bachelors' degrees (table 10-43) (*317*). The availability of upgrade programs for RNs without bachelor's degrees is a key issue for RNs in rural areas who want to become certified as CNMs, CRNAs, NPs, or other nurse specialists. Although certificate-level advanced nurse training programs do exist, their numbers are decreasing (*263,673*). Moreover, most organizations that certify advanced nurses require a bachelor's or master's degree (*263*), and there have been movements in some States towards the bachelor's degree as the entry-level degree in professional nursing (*698*). In fact, in the mid-1980s North Dakota became the first State to require a bachelor's degree in nursing for RN licensure (*263*).

Economic Factors

Economic concerns influence rural health personnel recruitment and retention at many stages. Increasing costs of health professions education can discourage students from choosing health careers. Heavy educational debt loads, perceived or actual rural-urban income differentials, and reimbursement policies that penalize certain specialties or geographic areas may influence practice choices. Other variables, such as rising malpractice insurance premiums, may also influence students' and professionals' career and practice choices.

Photo credit: Gail Mooney

Nurses in many rural hospitals are called upon to assume a wide range of responsibilities due to the hospitals' small size and limited resources.

Costs of Education and Student Indebtedness

Tuition in many health professions schools has been increasing faster than inflation. During the period 1980-81 to 1986-87, average medical school tuition increased by 125 percent for students attending a public school in their State of residence (*671*). First-year tuition in osteopathic medical schools increased by 17 percent from 1982 to 1984 alone (*670*). The average cost of tuition, fees, and other expenses at United States medical schools in academic year 1987-88 ranged from $13,765 for students attending public schools in their State of residence to $25,629 for students attending private medical schools (*673*) Tuition in all types of nursing programs has also been increasing (*673*). In publicly supported associate degree nursing programs, tuition increased by 65 percent from 1985-86 to 1989-90 (*673*).

Recent reductions in the availability of scholarships and other forms of financial aid have forced medical students to borrow more heavily in order to finance their education (*168*). As costs of education have increased, so have the levels and frequency of indebtedness among health professional school graduates. A recent study of students in allopathic and

Table 12-3—Registered Nurses Employed in Nursing: Percent of Time Spent in Various Professional Activities and Percent Enrolled in Advanced Nurse Education Programs, by County Population Size, 1988

	Percent distribution within each county size category[a]					
	All U.S. counties	Counties 50,000 or more residents	Counties with fewer than 50,000 residents	Counties with 25,001 to 50,000 residents	Counties with 10,001 to 25,000 residents	Counties with 10,000 or fewer residents
Currently enrolled in education program for nursing-related degree:						
Yes	11.2	11.4	8.9	9.3	7.8	10.4
No	88.3	88.1	90.8	90.4	92.1	89.6
Unknown	0.5	0.5	0.2	0.3	0.2	0.0
Total[b]	100.0	100.0	100.0	100.0	100.0	100.0
Percent time spent in:						
Administration	10.4	10.3	12.1	11.3	13.0	13.0
Consultation	6.5	6.5	5.9	5.4	6.8	5.8
Direct patient care	64.6	65.0	60.8	62.1	59.1	58.5
Research	1.6	1.6	1.3	1.3	1.2	1.4
Supervision	11.3	11.0	15.0	14.5	15.2	17.0
Teaching	5.1	5.2	4.4	4.8	3.9	4.1
Other	0.4	0.4	0.5	0.4	0.7	0.1
Total[b]	100.0	100.0	100.0	100.0	100.0	100.0

[a] County population size does not necessarily reflect metro or nonmetro status.

[b] Percentages may not add to 100 due to rounding.

SOURCE: D.A. Kindig, University of Wisconsin, Madison, WI, and H. Movassaghi, Ithaca College, Ithaca, NY, unpublished analysis of data from the 1988 National Sample Survey of Registered Nurses (provided by the Division of Nursing, Bureau of Health Professions) conducted under contract with the University of North Dakota Rural Health Research Center, Grand Forks, ND, 1989.

osteopathic medicine, dentistry, optometry, and veterinary medicine estimated that three-fourths of these students cover 70 to 90 percent of their educational costs through loans averaging $10,000 for each year they are in school (*52*). The average educational debt of senior allopathic medical students[13] more than doubled from 1980 to 1989, from $17,200 to $42,374 (*61,671*). In 1989, 81 percent of senior allopathic medical students reported some level of educational debt, and 29 percent were in debt in excess of $50,000 (*61*). The average educational debt of senior ostepathic medical students increased by 30 percent from 1985 to 1988 alone, from $49,600 to $64,700 (*21*).

Indebtedness of other health professionals can also be substantial. In 1987, the average debt of dental graduates was $39,000 (*673*). The amount doubled from 1979 to 1984, and it has since increased at an annual rate of 6 percent (*673*). In 1987, average indebtedness was $33,600 for graduating optometry students and $13,000 for graduating pharmacy students (*673*). The average educational debt of baccalaureate nursing students in 1988 was $10,056 in public institutions and $12,939 in private institutions (*19a*).[14]

Heavy debt loads may cause financial difficulties for physicians during specialty training and during the early years of practice. Hernried et al. estimated that a resident with $40,000 in undergraduate debt who is training in a relatively inexpensive city will experience a deficit of $4,890 during internship and will have a negative cash flow throughout his or her residency (*254*). Residents with debts in excess of $80,000 may accumulate an additional debt of $75,000 or more during a 5-year residency program (*254*).

Evidence on the relationship between indebtedness and location choice is scarce and inconclusive. A recent study of indebtedness issues by the Bureau of Health Professions (*670*) concluded that the current scarcity of research on the effects of indebtedness on career and location choices may be due in part to the relative newness of high student indebtedness. If educational costs and indebtedness levels continue to escalate at their current rate, financial considerations will probably become more prominent factors in students' and graduates' career and practice choices.

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[13] Includes debt from premedical education. Included in the average are students who reported no educational debt.

[14] Baccalaureate nursing student debt based on data from case studies in only 10 institutions.

Income and Practice Costs

Factors such as lower income and increased number of patients with inadequate insurance coverage have been cited as sources of job dissatisfaction among rural physicians (*405,461*). The extent to which economic concerns such as these actually affect health professionals' location decisions has not been assessed directly, but perceived or actual lower income may serve as a disincentive to rural practice.

The incomes of rural physicians are lower and have not increased as rapidly as the average income of all physicians (table 12-4) (*68*). Some of the smaller increases are probably due to the fact that many rural physicians are primary care physicians, who have also witnessed relatively slow rises in income. Less is known about rural/urban differences in the incomes of other health professionals. PAs practicing in smaller communities are more likely to have low salaries than PAs practicing in larger communities (table 12-5) (*17*). There are considerable differences in average RN salaries among counties of different population sizes, with RNs in the least populated counties receiving only 76 percent of the annual salary of RNs in the most populated counties (table 12-6) (*317*). The extent to which these differences reflect cost of living or other factors is unknown.

Physician Income—Nearly 30 percent of physician income is from government sources, much of it from Medicare (*68*). Geographic variations in Medicare payments for equivalent physician services, which can be considerable (*152,396,475,609,615*), have been a subject of considerable attention from the Physician Payment Review Commission (PPRC) and other interested parties. Payments within a given locality to different practitioners who provide equivalent services also vary (*475,562*). These variations are probably an underlying cause of geographic variations in payment within a given physician specialty, because methods for setting payment rates for different specialists are not consistent among Medicare's insurance carriers[15] (*652*).

Table 12-4—Income of U.S. Physicians (as a Percentage of Average Physician Income) by Specialty and Practice Location, 1977 through 1986[a]

	Percent of average U.S. physician income	
	1977-78	1985-86
Income by specialty		
General/family practice	82.8	68.3
Internal medicine	98.2	91.2
Pediatrics	76.5	68.2
Income by geographic area		
Nonmetropolitan areas	95.9	86.8

[a]Data are an average of 2 years' surveys.

SOURCE: Reprinted with permission from P.G. Barnett and J.E. Midtling, "Public Policy and the Supply of Primary Care Physicians," JAMA 262(20):2864-2868, 1989, table 5 (Copyright 1989, American Medical Association). Based on data from: M.L. Gonzalez and D.W. Emmons, Socioeconomic Characteristics of Medical Practice 1987 (Chicago, IL: American Medical Association, 1987).

Table 12-5—Average Annual Salary Range of Physician Assistants by Community Size, 1989[a]

	Community size[b]		
Salary range	Fewer than 10,000 residents	10,000 to 250,000 residents	More than 250,000 residents
	Percent of physician assistants		
Less than $20,000	5	3	4
$20,000-$30,000	20	17	12
$30,000-$40,000	44	46	41
$40,000-$50,000	20	23	26
Greater than $50,000	10	10	15
None listed	1	1	1
Total[c]	100	100	100

[a]This information is derived from the American Academy of Physician Assistants' 1989 Prescriptive Practice Survey and is statistically representative of member and nonmember physician assistants in communities of all sizes.

[b]Community size does not reflect metro or nonmetro location.

[c]Percentages may not add to 100 due to rounding.

SOURCE: American Academy of Physician Assistants, Alexandria, VA, unpublished data from the 1989 PA Prescriptive Practice Survey provided to OTA in 1989.

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[15] Medicare Part B reimbursement is handled through 48 insurance carriers. Physicians submit their claims to the carriers for reimbursement, and the carriers in turn submit reimbursement totals to the Health Care Financing Administration on a quarterly basis.

Table 12-6—Average Annual Salary of Registered Nurses, by County Population Size, 1988

County population size[a]	Average annual salary[b]
All U.S. counties	$27,432
50,000 or more residents	27,790
Fewer than 50,000 residents	23,516
25,001 to 50,000 residents	24,336
10,001 to 25,000 residents	22,774
10,000 or fewer residents	21,365

[a] County population size does not necessarily reflect metro or nonmetro status.

[b] Annual earnings in principal position.

SOURCE: D.A. Kindig, University of Wisconsin, Madison, WI, and H. Movassaghi, Ithaca College, Ithaca, NY, unpublished analysis of data from the 1988 National Sample Survey of Registered Nurses (provided by the Division of Nursing, Bureau of Health Professions) conducted under contract with the University of North Dakota Rural Health Research Center, Grand Forks, ND, 1989.

Under Medicare's current "customary, prevailing, and reasonable" (CPR) method for determining physician payments, which will remain in place until 1992 (see ch. 3), the United States is divided into approximately 240 "prevailing charge localities" administered by 48 insurance carriers. Within each locality, the carriers compute a "prevailing charge" for each physician service (*475*). A 1986 survey of 39 carriers found that 5 carriers did not distinguish among specialists in calculating the prevailing charge, but that 17 carriers calculated a separate "prevailing charge" for each specialty (*652*).

PPRC studied geographic variations in prevailing charges for 13 procedures and found notable variations among urban and rural counties of different sizes (table 12-7) (*475*). Prevailing charges were generally lowest in the smallest rural areas and highest in the largest urban areas. After adjusting for cost of practice, however, these variations evened out considerably (table 12-7).[16] PPRC concluded that these analyses "cast doubt on the existence of major inequities between rural and urban areas in the aggregate," but that greater inequities do exist among specific localities, both urban and rural (*475*).

Among the 13 procedures studied, charges for hospital and office visits to internists and FPs showed substantially greater variations among localities than did other services (*475*), a fact that may be of particular significance in rural areas where internists and FPs constitute a larger part of the physician population. A study of geographic variations in Medicare surgical fees found that, both before and after adjusting for practice costs, rural/urban differences were much smaller than differences across large urban areas (*396*).[17] Wide variation across rural areas of the same size has also been noted. In 1984, for example, prevailing charges for a total hip replacement were $2,400 in rural Mississippi and $990 in rural Kentucky (*475*). Such examples are not isolated incidents, and they cannot be explained by differences in practice costs alone (*475*).

Less is known about geographic and specialty variations in Medicaid reimbursement for physician services. By law, Medicaid is prohibited from paying more than Medicare would for a particular service (see ch. 3), although in practice it may occasionally do so. In many cases, however, Medicaid appears to pay considerably less. Table 12-8 compares Medicare and Medicaid payments for two common procedures in each State in 1986. Depending on the State, the maximum Medicaid payment ranged from 33 to 125 percent of Medicare's maximum allowable charge for a brief followup office visit, and from 14 to 104 percent for an appendectomy (*610*). These percentages must be regarded with caution, because the analysis compared the highest Medicare-allowed charge anywhere in a State to the average maximum Medicaid payment statewide. However, the analysis does illustrate the extreme variation in both Medicare and Medicaid reimbursement.

Rural physicians may be harder hit by low Medicare and Medicaid reimbursement rates because they have proportionately greater Medicare and Medicaid caseloads than those of their urban counterparts. A recent survey of Minnesota physicians found that the median Medicaid caseload was 15 percent in rural Minnesota compared with 5 percent in the Twin Cities metro area (*173*). Rural physicians surveyed were more likely than physicians Statewide to report a recent increase in their

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[16] PPRC uses the Geographic Practice Cost Index (GPCI) to adjust for geographic differences in cost of practice

[17] These researchers also used the GPCI to adjust for practice costs.

Table 12-7—Average Prevailing Charges for Selected Procedures by Geographic Location, Actual and Adjusted for Differences in Practice Costs, 1987 (in dollars)

	County size and classification[a]				
Procedure (specialist)	Large urban	Small urban	Large rural	Small rural	All counties
Comprehensive office visit (internist)					
Actual	83	76	69	68	77
Adjusted	76	79	76	77	77
Comprehensive office visit (family practitioner)					
Actual	72	63	55	53	64
Adjusted	65	65	61	60	63
Limited office visit (internist)					
Actual	26	22	20	18	23
Adjusted	24	23	22	21	23
Limited office visit (family practitioner)					
Actual	24	21	19	18	21
Adjusted	22	21	21	20	21
Hospital care, comprehensive (internist)					
Actual	94	88	80	79	88
Adjusted	87	90	90	89	89
Hospital care, comprehensive (family practioner)					
Actual	84	81	75	71	80
Adjusted	77	83	83	80	80
Hospital care, limited (internist)					
Actual	29	23	21	20	25
Adjusted	27	24	23	23	25
Consultation, comprehensive (internist)					
Actual	116	98	89	85	102
Adjusted	106	100	99	96	102
EKG, complete (internist)					
Actual	39	36	34	33	36
Adjusted	36	37	38	37	37
Chest x-ray (internist)					
Actual	44	39	37	37	40
Adjusted	40	40	41	42	41
Upper GI endoscopy (gastroenterologist)					
Actual	361	327	313	285	335
Adjusted	338	334	347	321	339
Gallbladder removal (general surgeon)					
Actual	1,042	893	810	794	920
Adjusted	966	922	907	899	933
Cataract removal (ophthalmolgist)					
Actual	1,867	1,593	1,521	1,563	1,681
Adjusted	1,718	1,628	1,701	1,776	1,685
Multiservice index					
Actual	114	97	90	86	101
Adjusted	104	99	100	98	101

[a] Large urban = metro counties of 1,000,000 or more residents; small urban = metro counties with fewer than 1,000,000 residents; large rural = nonmetro counties with 10,000 or more residents; small rural = nonmetro counties with fewer than 10,000 residents.

SOURCE: Physician Payment Review Commission, Annual Report to Congress: March 1988 (Washington, DC: March 1988), tables 8-5 and 8-7.

Medicaid caseload (78 percent *v.* 52 percent) (*173*). Rural Minnesota physicians were also more likely than their urban counterparts to report recent increases in the proportion of their Medicare patients who are unable to pay their bills (61 percent of rural physicians *v.* 42 percent of physicians in the Twin Cities and 35 percent of physicians in Duluth and Rochester metro areas), and in the proportion of all their patients who lack any form of basic health insurance *(173)*.

Table 12-8—Medicaid Maximum Payments and Medicare Maximum Allowable Charges for Selected Services, 1986[a] (in dollars)

	Brief followup office visit			Appendectomy		
	Medicaid	Medicare	Medicaid as percent of Medicare	Medicaid	Medicare	Medicaid as percent of Medicare
Alabama	$11.70	$20.70	56.5	$405.00	$412.80	98.1
Alaska	28.41	24.70	115.0	NA	NA	NA
Arkansas	12.00	14.40	83.3	275.00	412.60	66.7
California	11.04	30.00	36.8	353.68	825.20	42.9
Colorado	11.75	15.50	75.8	280.00	433.20	64.6
Connecticut	8.80[b]	24.80	35.5	276.00[b]	700.00	39.4
Delaware	12.66	21.00	60.3	390.35	492.70	79.2
District of Columbia	20.00	25.00[c]	90.9	315.00	515.60[c]	61.1
Florida	10.00	24.80	40.3	197.50	674.60	29.3
Georgia	15.60	15.00	104.0	399.50	600.00	66.6
Hawaii	13.25	16.50	80.3	453.66	660.10	68.7
Idaho	10.50	14.60	71.9	336.40	476.10	70.7
Illinois	11.50	25.00	46.0	270.00	605.00	44.6
Indiana	17.30	16.50	104.8	533.00	515.75	103.3
Iowa	NA	30.00	NA	NA	500.00	NA
Kansas	15.00	16.70	89.8	268.00	536.20	50.0
Kentucky	13.00	16.50	78.8	401.60	515.75	77.9
Louisiana	10.69	16.30	65.6	411.16	722.00	56.9
Maine	8.00	NA	NA	217.50	536.40	40.5
Maryland	10.50	22.00	47.7	202.00	515.70	39.2
Massachusetts	8.00	NA	NA	233.00	515.75	45.2
Michigan	7.75	23.50	33.0	271.50	399.00	68.0
Minnesota	15.75	NA	NA	520.00	519.90	100.0
Mississippi	11.55	NA	NA	295.05	510.00	57.9
Missouri	10.00	20.70	48.3	220.00	567.40	38.8
Montana	11.30	14.70	76.9	342.88	489.90	70.0
Nebraska	16.30	16.30	100.0	453.90	453.90	100.0
Nevada	15.82	24.70	64.0	673.72	742.70[d]	90.7
New Hampshire	6.00	12.40	48.4	225.00	490.00	45.9
New Jersey	9.00	20.60	43.7	211.00	660.20	32.0
New Mexico	11.50	17.20	66.9	396.15	579.60	68.3
New York	7.00[b]	20.60[d]	34.0	160.00	1,140.20	14.0
North Carolina	13.10	16.50	79.4	378.00	536.40	70.5
North Dakota	8.20	12.40	66.1	449.05	494.80	90.8
Ohio	12.00	20.60	58.3	337.50	515.75	65.4
Oklahoma	11.00	20.70	53.1	500.00	610.00	82.0
Oregon	11.07	18.50	59.8	387.98	577.60	67.2
Pennsylvania	13.00	25.00	52.0	301.50	515.70	58.5
Rhode Island	14.00	20.63	67.9	205.00	515.75	39.7
South Carolina	9.50	14.62	65.0	307.40	440.92	69.7
South Dakota	12.00	12.40	96.8	345.00	455.80	75.7
Tennessee	18.00	14.40	125.0	449.50	536.50	83.8
Texas	NA	24.75[b]	NA	NA	618.90[d]	NA
Utah	9.92	12.40	80.0	430.12	NA	NA
Vermont	8.00	12.40	64.5	225.00	490.00	45.9
Virginia	6.30	NA	NA	236.25	515.60	45.8
Washington	13.92	17.70[b]	78.6	290.23	576.80	50.3
West Virginia	10.00	16.50	60.6	230.00	515.75	44.6
Wisconsin	16.23	18.10	89.7	432.85	663.80	65.2
Wyoming	16.30	14.40	113.2	483.50	464.30	104.2
Simple average	12.43	18.56	67.0	337.97	557.47	60.6

NOTE: NA = not available.

[a] Maximums shown under Medicare and Medicaid are for physician specialist services, unless otherwise noted. In many States, there is a lower Medicare maximum for general practitioners' services; only a few Medicaid programs make this distinction. Medicaid maximums are statewide averages. Medicare maximums are the highest allowable charges anywhere in the State. Arizona had no general Medicaid program in 1986.

[b] Maximum payment for general practitioner; value for specialists is unavailable.

[c] Includes Maryland suburbs.

[d] Information available only for part of State.

SOURCE: U.S. Congress, Congressional Research Service, Medicaid Source Book: Background Data and Analysis, House of Representatives Committee on Energy and Commerce, Print No. 100-AA (Washington, DC: U.S. Government Printing Office, November 1988), tables G-3 and G-4.

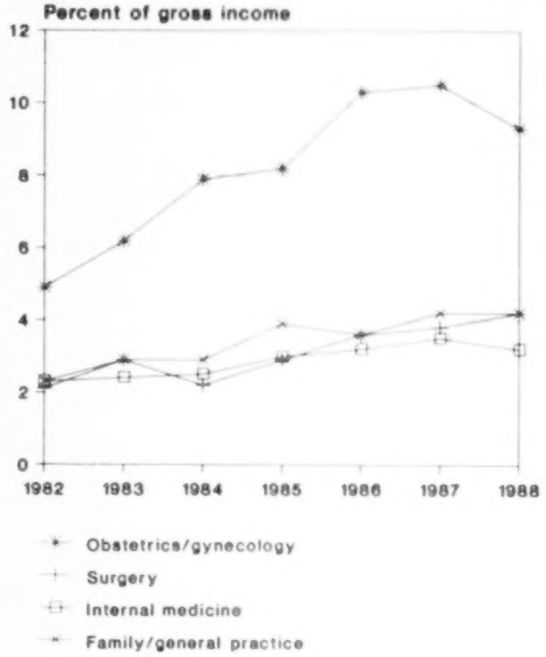
Physician Practice Costs—A *Medical Economics* survey of 1987 physician practice costs found that rural physicians had higher mean professional expenses than did their urban and suburban counterparts (*269*). This same survey showed that solo physicians' practice costs accounted for a percentage of their gross income greater than that for physicians in group practice.[18] American Medical Association data indicated that median professional expenses for rural G/FPs were $14,000 higher than those for G/FPs in the largest urban areas in 1988 (*218*).

Although surveys of physicians such as these suggest rural practice costs are higher than urban ones, other data show per-unit rural costs to be lower. While AMA and *Medical Economics* data are based on reported annual outlays per physician, Medicare uses the Geographic Practice Cost Index, which uses per-unit input prices for the various practice cost components (e.g., nonphysician employee salaries, malpractice insurance premiums, equipment costs), to set fees for specific services. These per-unit costs are generally lower in rural than in urban areas (*475*).

Medical malpractice liability insurance premiums as a percentage of gross income have increased more dramatically for providers of obstetric care than for other medical specialties, although these increases now appear to be leveling off (figure 12-2) (*36,218*). High premiums may discourage physicians and CNMs from practicing obstetrics, particularly in areas where volume of cases is low, or where women cannot pay the full costs of care. (The impact of rising malpractice insurance premiums on the availability of rural obstetric services is discussed in greater detail in ch. 15.)

Dramatic variations in physicians' malpractice insurance premiums exist among States. For example, in 1985, annual premiums for OB/GYNs in Florida (excluding Dade and Broward Counties), Arkansas, and North Carolina were $92,830, $18,950, and $15,290, respectively (*636*). Premiums in these States for general practitioners providing minor surgery were $16,700, $3,700, and $3,000, respectively (*636*).[19] No studies have been conducted to date to determine the direct effects of premium increases on providers' choices of practice location.

Figure 12-2—Average Liability Insurance Premiums as a Percent of Average Gross Income[a] of Self-Employed Physicians in Selected Specialties,[b] 1982-88



[a]Mean net income plus mean professional expenses.
[b]Does not include osteopathic physicians.

SOURCE: Office of Technology Assessment, 1990. Data from M.L. Gonzalez and D.W. Emmons, *Socioeconomic Characteristics of Medical Practice 1989* (Chicago, IL: American Medical Association, 1989); and American Medical Association, Center for Health Policy Research, *Socioeconomic Characteristics of Medical Practice 1987* (Chicago, IL: 1987).

Although more challenging to translate into purely economic terms, certain other practice "costs" may be higher for rural than for urban physicians, such as:

- longer work and on-call hours (figure 12-1),
- higher costs of maintaining medical equipment due to technician travel costs,
- difficulty subsidizing through patient revenues the costs of maintaining expensive but infrequently used medical equipment, and
- high volumes of uncompensated care for some physicians.

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[18] PPRC found substantial differences in the figures reported by this survey and others conducted during the same time period (*475*).

[19] All figures are for the same degree of coverage.

Concerns of Allied Health Professionals[20]

A Florida study (*572*) found that the greatest problems with the recruitment and retention of allied health professionals (AHPs) in Florida's small rural hospitals were general short supply of AHPs and difficulty in recruiting AHPs to work in rural areas. Recommendations of the study included:

- development of cross-training programs,
- recruitment of students from rural areas,
- development of rural training sites, and
- formation of networks through which rural hospitals could share the services of certain hard-to-find AHPs (*572*).

State licensure requirements for AHPs were also cited as a barrier to rural recruitment and retention (*572*). Small rural hospitals were particularly dissatisfied with Florida's licensure requirements for respiratory therapists, laboratory technologists and technicians, and radiologic personnel. Some hospitals indicated a need to broaden certain licensure requirements to permit personnel to perform a wider range of functions, while others recommended that licensure requirements be narrowed for hospitals that provide a more limited range of procedures. Some hospitals noted that practice regulations are in some cases too stringent, and that certain AHPs should be permitted to function with less direct supervision. For example, Florida law prevents licensed laboratory technicians from performing procedures (e.g., drawing blood, plating cultures) when a licensed medical laboratory technologist is not physically present in the room (*572*).

Although fulfilling continuing education requirements was cited as a problem for Florida's rural AHPs, hospitals and professional organizations felt that current requirements were appropriate and should not be changed due to the provider's location (*572*).

Multiskilled AHPs

Small rural facilities that have a lower volume of specific services may not need full-time specialized AHPs, but they may be required to hire certain types of personnel in order to provide those services. For example, a remote rural intermediate care facility would be required to provide limited diagnostic radiology services and medical laboratory services, but it may be fiscally unable to hire both a certified radiologic technologist and a certified medical laboratory technologist. Furthermore, a fully certified medical laboratory technologist may be overqualified for work in a facility that only provides a limited range of services. Ideally, such a facility would hire a single individual who was certified in both fields, but such individuals are in even shorter supply than single-skilled AHPs.

There are two major barriers to the use of multiskilled AHPs. First, there are few programs that offer formal cross-training for AHPs. It is not known how many of these, if any, are in rural areas. Some hospitals provide formal on-the-job training for their multiskilled AHPs (*424*), but this involves a commitment of resources that small rural facilities may not have.

Second, State licensure and regulation policies in some cases do not permit limited licensure of health professionals—i.e., licensure for a narrower range of skills than the profession typically performs. Returning to the example above, the rural intermediate care facility may not require the full range of skills that a fully trained and certified radiologic technologist could offer. Ideally, the facility would train a certified medical laboratory technologist to perform a more limited range of radiologic tasks (e.g., simple x-rays). This solution would be feasible only if the State offered limited licenses for radiologic technologists or had more flexible staffing requirements for intermediate care facilities. It is likely that informal cross-training of AHPs has been occurring in rural facilities for some time, but in some instances the use of such professionals may fall outside the proscriptions of State laws and regulations.

In its 1989 report, the Institute of Medicine's Committee to Study the Role of Allied Health Personnel described licensure as the "most restrictive type of regulation" and concluded that "its effectiveness in protecting the public has not been conclusively demonstrated" (*288*). The Committee recommended that States increase flexibility in current licensing laws to allow more overlap in scope of practice for some occupations and to allow alternative routes to licensure (*288*).

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[20] See ch. 10 for a description of allied health professionals.

SUMMARY OF FINDINGS

Factors Affecting Physician Specialty Choice

Unfortunately for the future supply of rural physicians, ***physicians are increasingly choosing nonprimary care specialties.*** Reasons for this trend include perceptions that primary care practice is less intellectually challenging and more demanding in time and effort. Lack of faculty role models in primary care may be an additional factor. Preference for nonprimary care specialties has also been linked to expected earnings and to high levels of indebtedness.

Public medical schools produce a larger proportion of primary care physicians than do private schools, and some States and regions send relatively high proportions of their medical graduates into primary care. Receipt of a Federal scholarship (e.g., NHSC) is also strongly associated with the choice of primary care.

Factors Affecting Location Choice

Physician location decisions are more dependent on personal and professional than on financial factors. Factors such as preference for rural or urban living, availability of recreational, social, and cultural activities, adequate backup facilities, opportunity for professional consultation and continuing education, shorter work hours, and opportunity for group practice have been identified as key determinants in the choice for rural or urban practice. Employment opportunities for spouses may also play a key role in the location decisions of young physicians. Other factors strongly associated with the decision for rural medical practice include lower socioeconomic background, experience in the National Health Service Corps, and participation in a loan forgiveness program tied to service obligation.

For nonphysicians, job satisfaction is more heavily influenced by professional autonomy and opportunities for career advancement. However, financial considerations may be important in the initial recruitment process.

Personal and Professional Concerns

Compared with urban physicians, physicians in rural areas work longer hours, see more patients per week, and have more office visits per week. Solo practitioners in isolated rural communities may have continuous hours, with little or no opportunity for vacation or continuing education leave. These problems may also apply to MLPs in isolated rural areas. A strong preference for group and salaried practice, most often found in urban areas, has been noted among medical residents. Studies examining the impact of hospital closures on rural physician supply are inconclusive or conflicting.

Lack of opportunities for career advancement and poor access to continuing or advanced education may dissuade nurses from choosing rural practice locations. For nurses already in rural areas, lack of educational resources may prevent them from seeking advanced nursing degrees, thus stifling a potential source of rural nurse MLPs.

A major barrier to the utilization of MLPs in autonomous settings is the limited coverage for their services under Medicare, Medicaid, and other third-party plans. Restrictive State practice acts can also present barriers to the utilization of MLPs in independent rural settings. Although third-party reimbursement for MLPs has improved during the past decade, it is still limited to certain settings, and it is usually indirect rather than direct.

Recruitment and retention of some AHPs in regulated rural settings, such as hospitals and nursing homes, are hindered by limitations of State licensing laws that do not permit the cross-licensing of AHPs to perform broader ranges of functions.

Economic Concerns

The costs of medical and other health professions education have risen sharply in recent years. Student indebtedness has also increased dramatically and is particularly pronounced for medical graduates. Although there is as yet no conclusive evidence of the effect of indebtedness on location choice, ***the increasing preference among medical graduates for salaried practice suggests that economic concerns such as indebtedness do play a role in practice decisions, and they may dissuade recent graduates from establishing private practices in rural areas.***

The average incomes of both primary care physicians and rural physicians have increased more slowly than those for other physicians. ***Based on the limited information available, it appears that physicians in rural practice care for a larger percentage of Medicare, Medicaid, and uninsured patients than their urban counterparts.*** Thus they may be penalized by low reimbursement rates (particularly for Medicaid patients) and higher volumes of uncompensated care. In addition, many "intangible" costs may be greater for rural than for urban physicians (e.g., longer work hours and costs of maintaining infrequently used equipment).

It remains unclear to what extent rising malpractice insurance costs are affecting the outmigration, immigration, or practice of rural health professionals. Obstetric care providers face particularly high premiums. Premiums have increased rapidly during the last decade, but they are now beginning to stabilize. The impact of the "liability crisis" may be greater on rural than on urban areas due to lower caseloads among rural practitioners and higher proportions of lower paying patients.

PAs and nurses in smaller communities have lower incomes than those in larger communities, but it is not clear to what extent these differences reflect cost of living or other factors.

Low operating margins make it difficult for many rural health facilities to compete for AHPs and nurses in the national labor market by raising salaries and offering other incentives. In addition, licensure requirements can limit the use of multiskilled AHPs in small rural facilities that neither need nor can afford to employ several AHPs to perform separate functions.

Chapter 13

Strategies To Recruit and Retain Rural Health Professionals

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Chapter 13

Strategies To Recruit and Retain Rural Health Professionals

INTRODUCTION

Faced with threatened or actual shortages of health care professionals,. rural communities respond by attempting to retain existing professionals and recruit new ones (box 13-A). The economic, geographic, and social disadvantages of some rural areas, however, continue to limit their ability to compete effectively for health professionals. The previous chapter examined factors that may influence the specialty and location decisions of health professionals. This chapter examines and evaluates various strategies that have been used to recruit and retain health professionals in rural areas. These include focused educational strategies (e.g., primary care and rural-oriented health professions education), strategies to reduce professional isolation (e.g., telecommunications networks for rural health personnel), strategies to address economic concerns (e.g., improving reimbursement to rural and primary care physicians), and targeted strategies for the most severe shortage areas (e.g., service-contingent loans and scholarships and the development of satellite clinic networks).

EDUCATIONAL STRATEGIES: PREPARING HEALTH PROFESSIONALS FOR RURAL PRACTICE

This section examines educational strategies to recruit and retain rural health professionals and describes Federal programs that may contribute to such strategies. It also describes specific projects that do not necessarily receive Federal funding but may be models for new or expanded Federal and State initiatives.

Medical Education Strategies

Special experiences during medical education can have a strong positive influence on physicians' decisions to practice primary care and to practice in a rural area (*72,165,212,442,443,576*). These experiences include primary care-oriented undergraduate curricula, rural preceptorships and residency rotations, and other types of decentralized educational models. The true impact of particular educational interventions on physicians' choices of specialty and practice location is difficult to determine. Many programs that use such interventions, however, place a large percentage of their graduates in rural practice sites. Available evidence suggests that comprehensive programs are more successful than brief rural preceptorships or residency rotations in influencing the decision for rural or primary care practice (*150*).

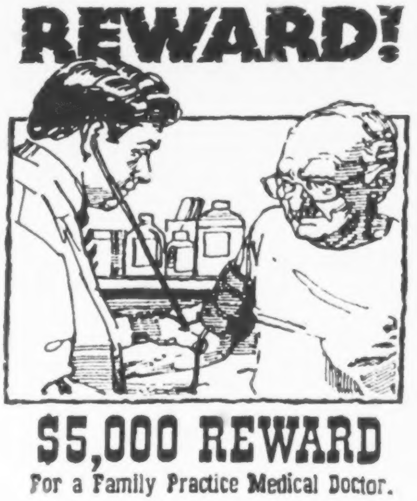
In addition to providing targeted funding to health professions training programs, the Federal Government has also sponsored a number of student assistance programs, including the Exceptional Financial Need Scholarship Program, the Health Professions Student Loan Program, and the Health Education Assistance Loan Program. The Federal Government also provides student assistance indirectly through traineeship grants to educational institutions (see ch. 3, table 3-1). These programs affect both urban and rural students, but information regarding the numbers of rural participants is not available. The Health Careers Opportunity Program and other programs administered through the Bureau of Health Profession's (BHPr's) Division of Disadvantaged Assistance have supported training for more than 50,000 disadvantaged and minority students since 1977 (*675*). These programs have effectively encouraged disadvantaged and minority students to enter health professions training programs and helped retain them in such programs.

Undergraduate Medical Education

The Federal Role—Federal support of undergraduate primary care medical education is limited to family practice. Section 780 of the Public Health Service Act authorizes grants to establish, maintain, and improve departments of family medicine in medical schools. Funding under this section decreased by 30 percent between 1981 and 1988 (from $9.5 million to $6.6 million) (*671*).

Examples of Rural-Oriented Undergraduate Programs—Some schools require students to participate in rural-oriented training. The University of Nebraska School of Medicine requires an 8-week rural preceptorship during the junior or senior year, where students work in a rural medical practice under the supervision of a local physician "precep-

Box 13-A—Wanted: Rural Physician


REWARD!
$5,000 REWARD
For a Family Practice Medical Doctor.

Graphics reprinted with permission of Administrator, Parkers Prairie District Hospital, Parkers Prairie, MN

Parkers Prairie, Minnesota: In the summer of 1989, the district hospital in the farming town of Parkers Prairie, Minnesota (population 917) offered a $5,000 reward to anyone who could find a family practitioner (*472*). A "wanted" poster and a cover letter were sent to every doctor and medical student in Minnesota, Nebraska, North Dakota, and South Dakota; the poster was put up in strategic places from Parkers Prairie to Minneapolis, advertising the $50,000 to $75,000 position (*472*). The bounty and advertised salary were apparently not high enough, and after several months the hospital was forced to hire a recruiting firm (*581*). The firm will charge from $12,000 to $20,000, regardless of whether it succeeds in finding a physician, and is urging the hospital to increase the salary to $125,000 (*581*). As of March 1990, Parkers Prairie still had not found a physician. It had also lost its administrator to a neighboring hospital that offered a better salary and benefits (*581*).

The 21-bed hospital's sole physician reports that the hospital is heavily in debt and is in imminent danger of closing (*581*). With three physicans, the hospital might be able to generate enough patient revenue to survive. The presence of larger hospitals in neighboring communities may also contribute to the hospital's financial difficulties by drawing local patients away. If the hospital does close, its physician plans to remain in the community in private practice, referring patients to a hospital 20 miles away (*581*).

According to a survey conducted by the Minnesota Hospital Association, 78 percent of Minnesota's rural hospitals were actively recruiting physicians in 1989 (*173*). Like Parkers Prairie, few of them were successful; on the average, hospitals had been searching for 17 months (*173*).

Delta, Utah: The administrator of a medical center in the desert town of Delta, Utah (population 8,000) also resorted to a bounty system to find a physician. One of the town's three physicians had left, and during the 4 months without a replacement, the other two doctors were "worked to death" (*259*). After professional recruitment firms failed to find a physician, the administrator enlisted the entire Delta community in the search, offering $5,000 as finder's fee for a family practitioner who would agree to practice in Delta for at least 3 years. The community succeeded. All three attractive candidates who emerged within 2 months after the bounty was announced were relatives of Delta residents. The reward went to a man whose father-in-law agreed to move his general practice from Slidell, Louisiana to the Utah town in September of 1989 (*259*). Slidell, a community of over 12,000 residents, remains adequately served by 13 primary care physicians (*156*).

tor." A survey of past participants found that the preceptorship had been a significant factor in the choice to enter residencies in a primary care specialty (*72*). The Kirksville College of Osteopathic Medicine in Kirksville, Missouri requires senior students to complete a 4-month rotation in a rural satellite clinic (*165*). The clinics are located in eight communities that have no resident physician, and students are supervised by faculty preceptors who visit each site daily. The rural clinics experience was found to be the most influential factor in the choice for rural practice location among graduates of the college. Other factors associated with the choice of a rural practice location were rural origin and experiences with preceptor faculty (*165*). At the University of New Mexico, all medical students must spend at least 1 month of clerkship time in a rural area (*573*).

Other schools offer rural-oriented training on an elective basis. The University of New Mexico School of Medicine offers a special Primary Care Curriculum track as an alternative to the more traditional curriculum (*573*). The special curriculum emphasizes self-directed learning and patient problem analysis in order to better prepare the physician to practice with confidence in remote settings where trained consultants may not be available. During the first year of study, a student spends a full 4 months in a rural area of the State under the direction of an approved preceptor, learning what it is like to live and work in a rural area (*573*). Thirty-one percent of the students in the special track have chosen family practice as a specialty, compared with 10 percent of students in the traditional track (*353*).

Another example of an elective program is the Rural Physician Associate Program at the University of Minnesota Medical School. Created in 1970, the program provides a 9- to 12-month rural clinical preceptorships for third-year medical students (*702*). Of all former program students in practice in 1986, 57 percent were in communities of 10,000 or fewer residents. The program has played a major role in improving the primary care physician-to-population ratios in Minnesota's rural (nonmetropolitan) counties. Studies comparing program and nonprogram students at the medical school indicate that students participating in the program have higher levels of confidence in behavioral, surgical, verbal, and interpersonal skills than do nonparticipating students, as well as higher degrees of computer literacy (*702*).

To reduce isolation and improve the quality of education received by students at remote training sites, schools can use telecommunications networks to link these sites directly to the sponsoring institution. For example, the University of Utah School of Medicine's rural family practice preceptorship program uses microcomputers to provide students in remote sites with the opportunity to conduct active medical literature searches (*235*). Participating students reported feeling less concerned about their ability to keep up-to-date on the latest medical knowledge, and felt more confident in their own skills (*235*).[1]

In addition to providing rural clinical training opportunities, some schools have decentralized the most basic components of medical education in order to influence the location choices of their graduates. Perhaps the best known example of a decentralized medical education program is the WAMI program (see box 13-B). Since the program began in 1975, it has largely achieved its original goal of improving the geographic distribution of physicians in the four-State area. A recent study showed that 23 percent of graduates with WAMI program experience were practicing in rural areas in 1981, compared with 13 percent of all U.S. physicians (*4*). Of graduates with WAMI experience, 61 percent were in primary care practice (family practice, general practice, general internal medicine, or general pediatrics), compared with 35 percent of all U.S. physicians (*4*).

Box 13-B—The WAMI Program

In 1971, the WAMI (Washington-Alaska-Montana-Idaho) Program was established to improve the geographic distribution of physicians within the four-State area, which encompasses almost one-fourth of the total land mass of the United States (*4*). The University of Washington in Seattle, having the only medical school in the entire region, agreed to accept 20 students each from Montana and Idaho and 10 students from Alaska into each year's medical school class. In 1975, the program was decentralized in order to further improve distribution of general/family practitioners throughout the region. The first 2 years of training are now taken at the University of Washington School of Medicine in Seattle and at smaller institutions such as the University of Alaska at Fairbanks and Montana State University in Bozeman. During the third and fourth years, or the "clinical phase" of the program, all students participate in clerkships in family practice, internal medicine, obstetrics and gynecology, pediatrics, and psychiatry in Seattle as well as in 17 more remote towns throughout the WAMI region. Graduate residents in family practice, pediatrics, internal medicine, and psychiatry at the University of Washington also rotate service in rural areas throughout the WAMI region (*4*).

A study of 42 WAMI alumni practicing in Alaska in 1986 (*179*) found that 52 percent were practicing in small towns and 91 percent were in family practice. The amount of time spent in Alaska clerkships positively correlated with the number of graduates choosing to practice in small Alaskan towns. Of graduates in small towns, 36 percent reported that without the WAMI program they would have been unable to attend medical school (*179*).

Selective Admission of Rural Students—Another strategy used by some medical schools is selective recruitment of students predisposed to rural practice (e.g., students with rural backgrounds).

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[1] This project was funded in part by the National Library of Medicine.

Medical schools that have changed admission policies to favor rural students have increased the number of graduates who chose rural and underserved practice (*154,375,498,499*). For example, graduates from the Physician Shortage Area Program at Jefferson Medical College in Philadelphia, which recruits such students, were 7 to 10 times more likely than other graduates to practice family medicine in rural or underserved areas (*499*).

A study of the rural-oriented primary care medical school curriculum at Michigan State University's Upper Peninsula campus found that most Upper Peninsula graduates were themselves from rural areas (*100*). Graduates were more likely than their "down state" counterparts to choose rural practice and family practice (*100*). At the Kirksville College of Osteopathic Medicine in Missouri, about 50 percent of the students who graduated between 1930 and 1984 came from towns of fewer than 25,000 residents (*165*). In 1981, students from smaller towns were much more likely than students from larger towns to be practicing in rural areas (*165*).

Unfortunately, rural youth may be discouraged from choosing a medical career because of poorer secondary educational resources in some rural areas (*325*) or because of the high costs of medical education. As noted in chapter 12, the proportion of enrolled medical students who are from rural areas decreased by almost one-third between 1978 and 1986 (*500*).

Graduate Medical Education

The Federal Role—The Federal Government, through the Medicare program, funds graduate medical education (GME) in all specialties by reimbursing hospitals for costs associated with such education. In addition, the Federal Government subsidizes both undergraduate and graduate primary care training programs and demonstration projects in rural areas.

Medicare reimbursed hospitals approximately $3 billion in 1988 (*672*).[2] Recent and proposed reductions in Medicare reimbursement for GME costs (*138*) have caused particular concern among primary care residency programs. Studies have shown that family practice (FP) residency programs—especially those in ambulatory care settings—cannot usually cover their costs through patient care revenues (*128,139,305,464*). Reduced funding may lead hospitals to reduce the number and size of their residency programs; if so, those programs most likely to be discontinued are primary care residencies, which contribute the least to hospital revenues (*113,138*).

Critics of the current medical education system have recommended that more primary care specialty training programs be moved to the ambulatory care setting, where most primary care medical practice occurs (*338,521,606*). Development and maintenance of ambulatory care training programs would probably require further targeted funding to help offset some of their additional costs.[3]

Federal funds to encourage the production of primary care physicians have decreased considerably over the past decade. Federal grants to FP residencies decreased by 25 percent from 1980 to 1988, from $27.1 million to $20.2 million[4] (*676*). Federal grants to general internal medicine and general pediatric residency programs decreased by 28 percent during the same period, from $19.3 million to $13.9 million (*68*).[5]

The Omnibus Budget Reconciliation Act of 1987 (OBRA 87)[6] authorized a program to fund four Rural Health Medical Education Demonstration Projects. Under this program, hospitals sponsoring residency programs apply for grants to develop 1- to 3-month clinical experiences at small rural hospitals for physicians who have completed 1 year of residency training. Participating residents receive stipends and benefits based on the reimbursement rate of the sponsoring hospital rather than that of the small rural hospital, and payment to the sponsoring hospital is adjusted for additional costs unique to the program. The demonstration objectives are to determine appropriate components for rural residency programs and to show how such programs can be duplicated in other areas at minimal cost. The Omnibus Budget Reconciliation Act of 1989 (OBRA 89)[7] expanded the number of demonstration projects to 10. Projects began in mid-1989 and last for 3 years.

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[2] This amount included nearly $1 billion in direct costs (e.g., teaching costs, residents' salaries, administrative expenses) and just over $2 billion in indirect costs (additional operating costs assumed to be associated with the teaching function—e.g., increased use of ancillary services; increased cost of high-tech testing and treatment facilities).

[3] Certain GME costs may be higher in ambulatory care settings, due to differences in the logistics of teaching in these settings. For example, fewer students may be involved in an ambulatory visit than during a lengthier hospitalization, and the increased duration of ambulatory visits due to student involvement may decrease the total patient volume of the facility hosting the program (672). Before 1986, Medicare only reimbursed for outpatient care education if it was provided in hospitals. The Omnibus Budget Reconciliation Act of 1986 (Public Law 99-509) broadened reimbursement to include educational costs in any outpatient care settings where a hospital incurred "all or substantially all" of the training cost.

[4] Funding is authorized under section 786(a) of the Public Health Service Act. Figures do not include funding for faculty development projects.

[5] Funding is authorized under Section 784 of the Public Health Service Act. Figures do not include funding for faculty development projects.

[6] Public Law 100-203.

Examples of Rural-Oriented Graduate Programs— A unique program in Montana, a State with no FP residency program of its own, provides satellite rotations in rural Montana communities for FP residents from about 80 out-of-State programs (*442,443*). Participating residents complete their rotations under the supervision of board-certified physicians. The program has not only enabled Montana to attract residency graduates from other States, but it has also helped to improve the geographic distribution of physicians within the State (*442,443*).

A pediatric residency program at a medical center in Hanover, New Hampshire places medical residents in rural pediatric practices viewed as "teaching laboratories," where they are exposed over a 3-year period to various aspects of rural practice. Of the first 14 residents to complete the program, 12 were in primary care practice in 1985 and 8 were practicing in rural locations in various States (*309*). A general surgery residency program at the University of Louisville in Kentucky provides optional rotations in rural areas. A survey of physicians who graduated from the program between 1972 and 1981 found that a significantly larger percentage of those who were practicing in rural than in urban areas had participated in the optional rotations (*57*).

A program launched in 1979 at the Marshall University School of Medicine allows FP residents to take 1-3 years out of their training to practice in underserved communities while earning masters' degrees in community health. The program director believes that "this program has accounted for more years of physician service in underserved areas of West Virginia than any program besides the National Health Service Corps" (*533*).

Decentralized residency programs also provide unique opportunities for faculty and can contribute to the well-being of both sponsoring and local hospitals. A rural teaching practice operated through the Department of Family Medicine at the State University of New York at Buffalo is composed of a four-physician group practice serving two rural communities (*529*). The four physicians are full-time faculty at the university, and the group practice provides unique rural educational experiences for medical students, residents, and fellows. The practice more than covers its annual costs, represents a substantial portion of the primary care referral base at the university teaching hospital, and has contributed to stabilizing the occupancy rates of local rural hospitals (*529*).

Educational Strategies For Other Health Professionals

Midlevel Practitioners (MLPs)

The Federal Role—The Federal Government has supported PA training programs for nearly two decades (table 13-1). Since a major decline in 1982, funding has remained relatively stable. Approximately three-fourths of the 52 PA training programs in operation in 1989 received Federal support (*192*). Some of the federally funded PA programs have a rural focus, and all are mandated to encourage their graduates to practice in health personnel shortage areas. Continued support of PA training programs, particularly those with a rural orientation, is likely to have a positive effect on rural PA supply.

The Federal Government also supports the training of certified nurse-midwives (CNMs), nurse practitioners (NPs), and certified registered nurse anesthetists (CRNAs) through the Nurse Practitioner and Nurse Midwifery grant program and the Nurse Anesthetist Traineeships and Programs grant program. Although these programs are not entirely dedicated to the training of students for rural practice, they do fund some rural-focused[8] projects. Funding for the Nurse Practitioner and Nurse-Midwifery grant program changed little between 1980 and 1990—from $13.0 million to $13.4 million

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[7] Public Law 101-239.

[8] Classification of a federally funded nurse training project as "rural-focused" is based on the appearance of the the term "rural" in the program description.

Table 13-1—Federal Support for Physician Assistant Training Programs, Fiscal Years 1972-1989

Authority[a]	Fiscal year	Amount funded	Total number of programs
HMEIA Contracts Section 774(a)	1972	$ 6,090,109	40
	1973	6,208,999	39
	1974	8,129,252	43
	1975	5,994,002	40
	1976	6,247,203	41
Section 701(8) and Section 783(a)(1)	1977	$ 8,171,441	39
	1978	8,685,074	42
	1979	8,453,665	42
	1980	8,262,968	43
	1981	8,019,000	40
	1982	4,752,000	34
	1983	4,752,000	34
	1984	4,414,850	34
	1985	4,442,076	37
	1986	4,548,000	36
	1987	4,275,000	36
	1988	4,549,973	37
Sections 701(8) and 788(d)	1989	4,452,000	38

[a] Public Health Service Act.

SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Physician Assistant Program Files, Rockville, MD, August 1989.

(table 3-1).[9] It funded 11 rural-focused NP projects and one rural-focused nurse-midwife project in fiscal year 1988. Most of the grantees were family practice, primary care, or geriatric care NP training programs providing rural clinical experiences and rural-oriented curricula for their students. Of the 208 NP training programs operating in 1984, almost one-half received some support from the Federal Government (*671*). The Nurse Anesthetist Traineeships grant program[10] received $1.1 million in appropriations in 1990, an increase over 1989 appropriations (see table 3-1). The number of rural programs funded is not known.

Examples of Rural-Oriented MLP Training Programs—NP and PA training programs with rural-oriented curricula have been highly effective in placing their graduates in rural and underserved communities (*209,230,337,509,535*). Some of these programs selectively recruit students who already have job commitments in the local area once their training is completed. A certificate-level NP training program at East Carolina University in North Carolina has been very successful in placing graduates in rural practice (*337*). A similar program at Georgia Southern College has also been successful (see box 13-C). The Primary Care Associate Program based at Stanford University and Foothill College in California trains PAs and NPs to provide services in medically underserved areas (*230*). The program has community-based training sites that recruit their own students locally and have succeeded in retaining over 70 percent of their graduates in the local areas (*230*).

Decentralized education programs have been hailed as highly effective means of improving recruitment and retention of MLPs and other health professionals in rural areas, but the degree of decentralization required has been debated (*230*). Completely decentralized programs (i.e., those that provide all components of the educational process at the remote site) have higher operating costs than those that decentralize only the terminal (or clinical) phase of training, and they may not be any more

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[9] Funding is authorized under Section 822(a) of the Public Health Service Act.

[10] Funding is authorized under Section 831 of the Public Health Service Act.

Box 13-C—Example of a Rural-Oriented Training Program for Nurse Practitioners

Georgia Southern College's certificate program for family nurse practitioners (FNPs) emphasizes development of strong generalist skills and an understanding of cultural and health care beliefs of rural populations in southeast Georgia (*209*). It provides rural clinical experience under the supervision of faculty experienced in rural practice. Admissions policies favor students living or practicing in rural areas, or who have expressed a commitment to practice in rural areas on completion of the program. Of the 75 FNPs who graduated from 1981 to 1988, 74 percent were working in medically underserved rural areas in 1988, providing care to populations characterized by low income, low education, and high mortality rates. A 1985 survey showed that over 90 percent of program graduates were still in Georgia, and 83 percent were employed as NPs (*209,535*). This program received Federal grant funding from 1982-87, without which the continuation of the program would have been "highly unlikely" (*209,535*).

The program has had difficulties recruiting students in recent years due to a change in the American Nurses' Association (ANA) certification policy (*209*). Beginning in 1992, the ANA will require a baccalaureate degree in nursing for NP certification (*263*). Not all States require ANA certification for NP practice, but Georgia does, and a lack of baccalaureate-prepared registered nurses in the area has caused marked decreases in program enrollment (*209*).

effective at retaining graduates in those areas (*230*).[11]

A new barrier to the recruitment of rural nurses into NP programs is the recent change in American Nurses Association (ANA) NP certification policy. The ANA now requires a bachelor's degree for NP certification (*263*). In States that require ANA certification for NP practice, decentralized training programs that recruit local nurses may not be viable due to a relative lack of registered nurses (RNs) with bachelors' degrees in rural areas (see table 10-43, box 13-C).

Nurses

Rural experience during basic training may help to better prepare nurses for general hospital as well as rural practice. Nursing students participating in elective rural rotations report that these experiences are more valuable than those available in urban facilities because they allow students to practice a wider range of skills with a greater degree of independence (*482*). Nursing students in a rural hospital preceptorship program who later took employment at the hospital reported feeling more comfortable with patients and less overwhelmed by the orientation process (*599*).

To make rural nursing more attractive, to improve retention of nurses who are already in rural areas, and to improve the rural supply of nurse MLPs (NPs, CNMs, and CRNAs), rural nurses need access to advanced training programs that will allow them to upgrade their skills without having to leave their families or place of employment.

The Federal Government supports general nurse training through the Advanced Nurse Training, Nursing Special Projects, and Nursing Demonstration Project grant programs. None of the grant programs are entirely dedicated to rural training, but all fund some rural-focused projects.[12]

Funding for the Advanced Nurse Training grant program increased from $12.0 million in 1980 to $17.3 million in 1988, but it decreased to $12.8 million in 1990 (table 3-1).[13] In fiscal year 1988, this program funded three rural-focused projects in Georgia, North Dakota, and Wyoming (*679*). These projects involved rural nurse specialty training programs and expansion of a master's level program in rural nursing. The Nursing Demonstration Project grant program funded four rural-focused projects in fiscal year 1988 (*679*).

Funding for the Nursing Special Projects grant program decreased from $15.0 million in 1980 to $12.9 million in 1990 (table 3-1).[14] This program funded 39 rural-focused projects in fiscal year 1988 and 40 such projects in fiscal year 1989 (*679*). Projects included:

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[11] The Primary Care Associate Program in California, for example, trains NPs and PAs through both pathways and has found post-graduate retention rates among students who took only the terminal phase of training at the satellite center to be even higher than among students who took the entirety of their training at those sites *(230)*.

[12] See footnote 8.

[13] Funding is authorized under Section 821 of the Public Health Service Act.

[14] Funding is authorized under Section 820 of the Public Health Service Act.

- continuing education programs for rural nurses on a variety of nursing topics;
- outreach and off-campus programs to provide baccalaureate degrees to RNs in rural areas;
- programs to upgrade licensed practical/vocational nurses (LP/VNs) to RNs;
- geriatric, home health, critical care, family, community, and preventive nursing training programs; and
- nursing preparatory education projects (*679*).

Some of the special projects used telecommunications to provide nursing education in remote areas (*679*).

Allied Health Professionals

Rural-oriented training has also been effective in recruiting allied health professionals (AHPs) to rural areas. A linkage program between the University of Alabama at Birmingham and several of the States' junior colleges provides clinical training opportunities for AHP students in underserved sites (*91*). Students receive their first year of training at a junior college, and the second year at the University of Alabama Medical Center in Birmingham. Their last weeks of clinical training are completed at smaller health care facilities throughout the State (*91*). After 11 years of the program, a study found that 66 percent of graduates returned to their home counties to work (*143*). Other schools that offer rural training opportunities to AHP students include the University of Wisconsin Medical Technology program and Kentucky Southern Community College (*288*). The relatively short length of most AHP training programs presents an excellent opportunity for local recruitment of students. The development of decentralized training programs such as these appears likely to improve AHP supply in participating communities.

Rural-oriented training of AHPs with a single skill, however, will not satisfy the unique staffing needs of many rural facilities. What are needed are programs that teach students a broader range of skills and offer eligibility for dual or multiple certification. One such program, which was started with the help of a Federal grant in the early 1970s, is located at Southern Illinois University at Carbondale. Originally, students in the Carbondale program pursued a primary area of study (e.g., radiography) with the option to pursue certification eligibility in a second area (e.g., medical technology) through an additional year of course work (*424*). After administrators found that many students were not utilizing their multiple competencies due to strict departmental lines in hospitals, the program was redesigned to combine complete competencies in either radiography or cardiorespiratory care with competencies in emergency medical services/technology, health care management, gerontology, or computer science (*424*).

Although demand for multiskilled AHPs is considerable (see ch. 10), only a small number of formal cross-training programs are currently in existence (*424*). A documentation project conducted by the National Multiskilled Health Practitioner Clearinghouse of the University of Alabama at Birmingham in 1988 identified only 75 programs nationwide offering multiple competency training. These programs are located primarily in community colleges and 4-year or graduate institutions. The study identified only four programs located in hospitals. Programs can be generic, preparing students in two or more areas of practice, or they can be "add-on" programs that expand the competency of individuals already certified in one area (*424*).

Federal funding of AHP training has declined considerably since its peak in the 1970s (table 13-2) (*288,674*). In 1974, nearly $30 million was awarded in grants, cooperative agreements, and contracts in allied health. In 1986, the figure was zero. Lack of data has prevented assessment of the impact of Federal funding in allied health (*288*). OBRA 89 (Public Law 101-239) approved $750,000 for the Allied Health Special Projects grants program, and $726,000 was appropriated. The program is designed to improve allied health program administration and expand enrollments in allied health programs. Only 7 to 10 grants were to be awarded in August 1990, but by mid-January 1990, the BHPr had received almost 1,000 inquiries about the program (*43*).

OBRA 89 also authorized a new grant program entitled Interdisciplinary Traineeships for Rural Areas. This program, funded at $2.25 million in 1990 (table 3-1), will support interdisciplinary health professions training programs in rural areas, and it could conceivably serve as an additional source of support for the training of certain AHPs.

Table 13-2—Federal Grants and Cooperative Agreements Awarded in the Allied Health Area, Fiscal Years 1967-1990

Fiscal year	Awards (in millions of dollars)						
	Advanced traineeships	Training institutes	Special improvements	Special projects	Basic improvements	Other	Total
1967........	0.24	0	0	0	3.29	0	3.53
1968........	1.20	0	0	0.80	9.75	0	11.75
1969........	1.55	0	0	1.23	9.75	0	12.53
1970........	1.54	0	0	1.23	9.70	0	12.47
1971........	2.46	0.48	0	4.48	9.70	0	17.13
1972........	2.59	0.32	10.50	7.63	0	0	21.04
1973........	1.95	1.14	7.00	5.64	0	0	15.73
1973[a].......	0	0	10.50	0	0	0	10.50
1974........	2.56	1.00	16.00	10.13	0	0	29.69
1975........	2.61	0.96	10.19	6.87	0	0	20.62
1976........	2.56	1.00	10.50	8.20	0	0	22.26
1977........	2.33	0.64	8.91	8.41	0	0	20.29
1978........	1.44	0.92	0	14.35	0	0	16.71
1979........	1.49	1.01	0	8.15	0	0	10.65
1980........	0.89	0	0	4.25	0	0.74[b]	5.88
1981........	0	0	0	0.51	0	0.37[b]	0.87
1982.... ...	0	0	0	0	0	0	0
1983........	0	0	0	0	0	0	0
1984........	0	0	0	0	0	0.91[c]	0.91
1985........	0	0	0	0	0	0.88[c]	0.88
1986........	0	0	0	0	0	0	0
1987........	0	0	0	0	0	0	0
1988........	0	0	0	0	0	0	0
1989........	0	0	0	0	0	0	0
1990[d].......	0	0	0	0.73	0	(2.25)[e]	0.73[f]

[a] Released impounded funds.

[b] Military Experience Directed Into Health Careers (MEDIHC) cooperative agreement funds.

[c] Grants for allied health personnel in health promotion and disease prevention.

[d] Figures represent appropriations and not award amounts. Award amounts were not yet available at the time of this study.

[e] Rural Health Interdisciplinary Traineeship grant appropriations. Not all of this money will go towards traineeships in the allied health professions.

[f] Excludes Rural Health Interdisciplinary Traineeship program funds.

SOURCE: Institute of Medicine, Allied Health Services: Avoiding Crises (Washington, DC: National Academy Press, 1989), table 5-4; U.S. Department of Health and Human Services, Public Health Service, Health Resources and Services Administration, Bureau of Health Professions, Division of Associated and Dental Health Professions, Rockville, MD, unpublished data provided by F. Paavola in 1990.

The Area Health Education Centers (AHEC) Program

The AHEC program[15] encourages training of health personnel in primary care and emphasizes the relationship between educational experiences and health care delivery. AHECs provide decentralized clinical education experiences for a variety of health professional trainees by linking academic resources of medical schools with local health facilities and agencies. AHECs also provide continuing education for health professionals in remote communities (*677*).

Federal funding of an individual AHEC may not exceed 9 years (see ch 3). The wide impact and success of AHEC-sponsored programs (box 13-D) indicate that Federal investment in these programs has encouraged State and local participation in activities addressing the geographic maldistribution of all varieties of health professionals. Each project must contribute at least 25 percent in matching funds from State or other sources, and some have contributed considerably more (*627,677*). Twenty-three AHEC programs are now functioning without Federal funding, and 18 more are moving towards

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[15] See ch. 3 for a description of AHEC program authorization and funding.

Box 13-D—Selected Area Health Education Center (AHEC) Activities

Arizona: AHECs in Arizona provide rural training experiences for medical residents, nursing students, health educators, and other health professions students at clinics serving Arizona's migrant farmworker population. Health professionals already serving migrant populations also have access to continuing education programs through the AHECs (*380*).

Arkansas: Programs of the Arkansas AHEC have contributed to improvements in the geographic distribution of physicians in the State. Since 1981, recruitment of family practitioners through AHEC-sponsored residency programs has been responsible for the elimination of physician shortages in 9 previously designated shortage areas. Over one-half of the graduates of these residency programs locate in towns of fewer than 20,000 residents (*151*).

North Carolina: A survey of all physicians who settled in rural North Carolina in 1976, 1977, and 1978 found that activities of North Carolina's AHEC program had been instrumental in those physicians' location decisions. The State has experienced dramatic improvements in physician-to-population ratios during the past decade (*376*). Seventy-three percent of all physicians who participated in a rural-oriented family practice residency program operated by the Mountain AHEC in Asheville since its inception in 1978 remained within the region to practice (*582*). Over one-half of these practitioners are located in communities of 10,000 or fewer residents (*582*). The AHEC has also been involved in developing off-campus baccalaureate programs for registered nurses, clinical training sites for both undergraduate and graduate nursing students, and continuing education opportunities for nurses and other health professionals in rural areas (*101*).

Oklahoma: The Oklahoma AHEC program provides preceptorship opportunities at Indian Health Service clinic sites and tribally operated clinics and hospitals for a variety of health professions students (*231*).

South Carolina: An AHEC in rural South Carolina coordinates with educational directors in hospitals throughout the region to determine the continuing educational needs of hospital employees. Programs to address identified needs are conducted at the facilities demonstrating greatest need, or at central locations where health professionals from all facilities attend. The AHEC program also serves the continuing education needs of nonhospital-based pharmacists, dietitians, nutritionists, nurses, and emergency medical personnel within the region (*729*).

Texas: AHECs in Texas are creating telecommunication linkages between health science centers and small rural hospitals for consultation and patient referral. The health science center provides the hardware, and the AHEC provides the health care specialists and information sources required to meet the needs of participating institutions. Other cooperative projects of the AHEC include joint pharmaceutical and supply purchasing, emergency transport information, and shared provider services (*170*).

Virginia: The Western Tidewater AHEC on Virginia's Eastern Shore provides multidisciplinary experiences in health promotion/disease prevention among migrant farm worker populations for students in dentistry, dental hygiene, medical technology, nursing, and medicine (*712*).

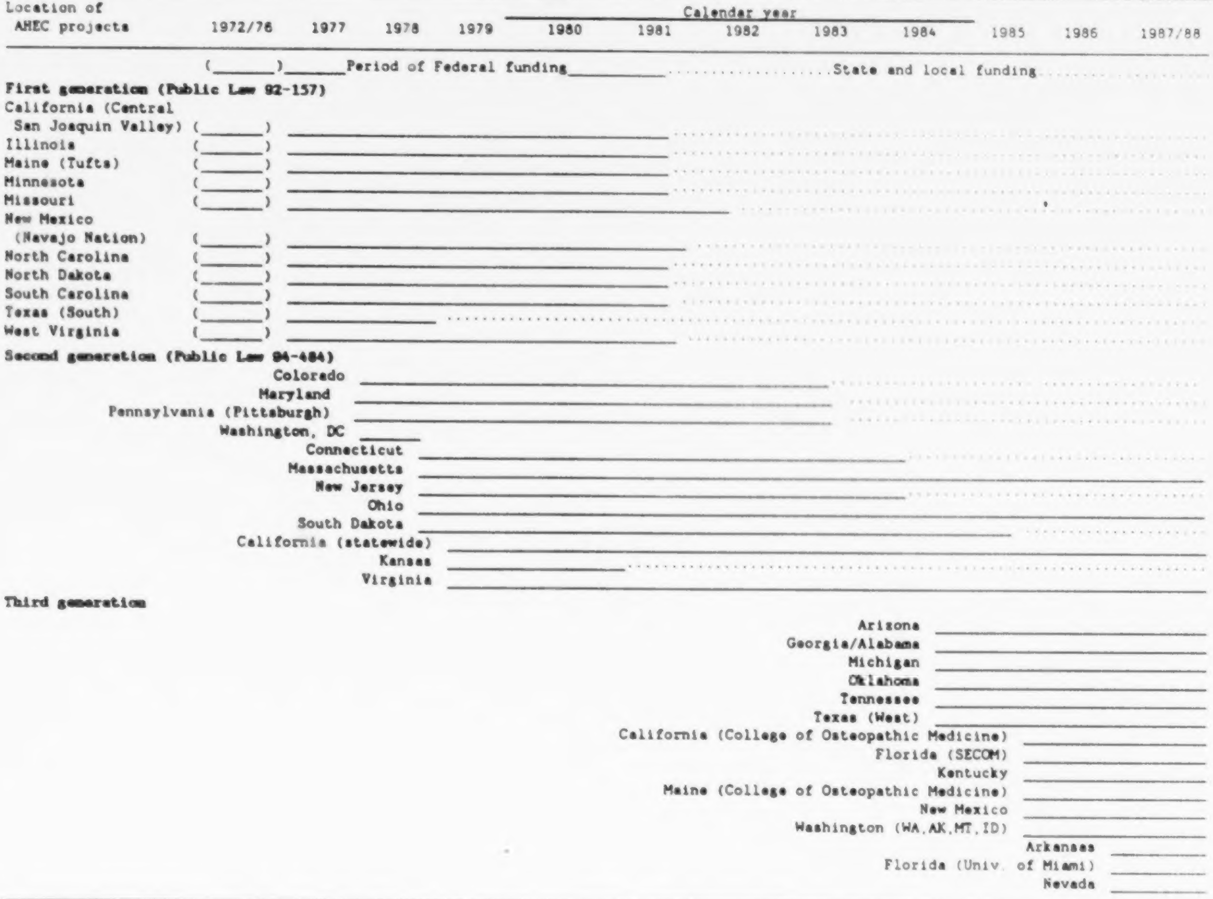
WAMI: The WAMI/AHEC program (serving the States of *Washington*, *Alaska*, *Montana* and *Idaho* through the University of Washington School of Medicine in Seattle) operates a Rural Hospital Project funded by the W.K. Kellogg Foundation. Its purpose is to examine the plight of rural hospitals within the region. This project represents an expansion beyond the typical AHEC program goals, involving administrative, planning, and policy personnel in addition to health care practitioners (*44*).

independence (table 13-3) (*677*). The first generation of AHECs (table 13-3), although intended as multidisciplinary efforts, devoted the greater portion of their resources to physician education (*210*). In the second and third generations, and in the continuing activities of first generation projects, a greater emphasis has been placed on nonphysician educational interventions (*210*). Federal funding for AHECs has remained relatively stable during the past decade (table 13-4) (*677*).

AHECs may cover portions or all of a State. While partial-State AHECs may be rural or urban, State-wide AHECs can encompass both rural and urban projects. Figure 13-1 depicts the distribution of the various types of AHECs across the country (*677*).

AHECs are involved in a wide variety of educational and service activities, ranging from rural clinical experiences for health professions students to research on the financial viability of rural hospitals (box 13-D). AHECs in Arizona, New

Table 13-3—Location and Funding Status of Area Health Education Center (AHEC) Projects



NOTE: Some projects received small AHEC "special initiative " awards after the Federal funding phase.

SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Division of Medicine, "The Area of Health Education Centers Program: Town and Gown Working Together to Improve the Nation's Health," Rockville, MD, 1988.

Table 13-4—Federal Funding of the Area Health Education Centers (AHEC) Program, Fiscal Years 1978-1990; and Impact of the AHEC Programs, Fiscal Year 1988

Fiscal year	Appropriation[a] (in $ millions)
1978	$17.0
1979	20.0
1980	21.0
1981	21.0
1982	18.2
1983	17.9
1984	17.9
1985	18.0
1986	17.2
1987	18.0
1988	18.0
1989	16.[illegible]
1990	18.5[b]
Funding and impact, fiscal year 1988	
AHEC programs (Sec. 781(a)(1))	
Amount awarded	$15.5 million
Number of projects	18
Number of regional centers	43
Number of States served	21
Special intitiatives[c] (Sec. 781(a)(2))	
Amount awarded	$1.7 million
Number of projects	28
Number of States served	10

[a] $87.9 million were awarded as contracts under the HMEIA authority from 1972 through 1976.

[b] A separate but similar program, the Health Education Training Centers Program, was authorized in 1988 (Public Law 100-607) and was appropriated $4.0 million in 1990. The program focuses on the training of health professionals in areas along the U.S.-Mexico border. The $18.5 million AHEC appropriation here is exclusive of that $4.0 million.

[c] See ch. 3 for an explanation of AHEC special initiative funding.

SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Division of Medicine, "The Area Health Education Centers Program: Town and Gown Working Together to Improve the Nation's Health," app. II, Rockville, MD, 1988. Updated by OTA.

Mexico and Texas emphasize recruitment of health professionals to serve Hispanic communities (*677*). Other AHECs focus on training of health professionals to serve Native American and black populations. AHECs operated through Meharry Medical College, Morehouse School of Medicine, and Charles R. Drew University have demonstrated success with increasing the number of black health professions students in the AHECs' underserved clinical training sites (*677*). An AHEC in Washington State has established an office of rural health that engages in numerous research and service activities relating to the States' rural health care needs (*426*).

The goals and priorities of AHECs differ depending on their geographic location. While urban AHECs concentrate on graduate medical education, health professions career opportunity programs, health education and nutrition programs, and undergraduate medical education, rural AHECs tend to emphasize nursing education and continuing professional education (*210*). Rural AHECs also have devoted a substantial portion of their resources to providing support for area National Health Service Corps (NHSC) providers and career mobility for nurses (*210*). A recent national study found that nonmetro counties with AHECs—especially counties not adjacent to metro counties—had greater growth in primary care physician supply between 1975 and 1985 than counties without AHECs (*281*).

Although response to local needs undoubtedly dictates some of the differences between rural and urban AHECs, differences in opportunities to conduct certain types of training programs may be another important factor. For example, compared with urban AHECs, rural AHECs may allocate fewer resources to undergraduate medical education programs because they are more remote from medical schools and have fewer local resources (*210*). Also, rural communities may not consider student training programs as important as the need for *trained* physicians in the area, especially if there is no guarantee that these students will return to the area to practice (*210*).

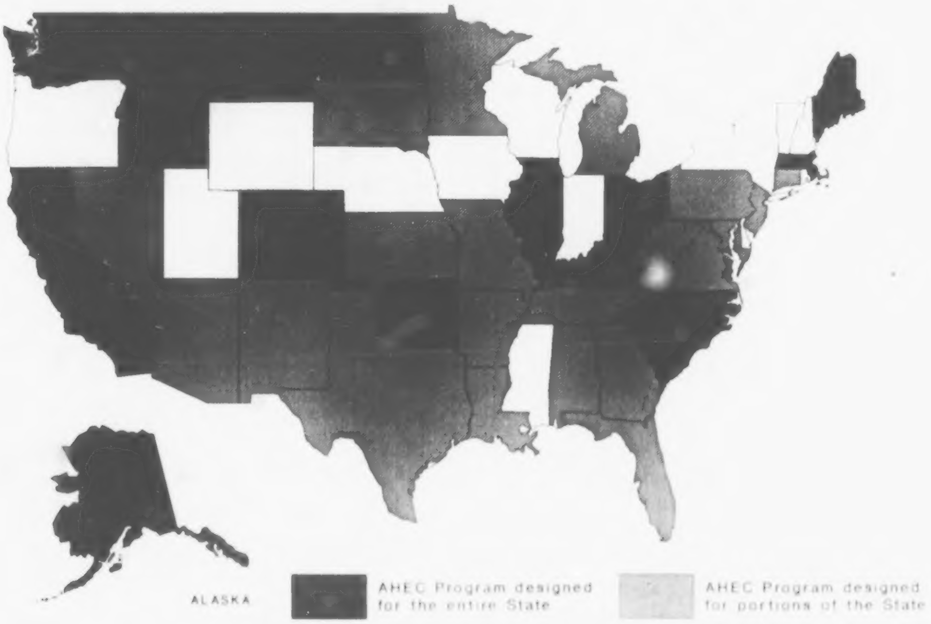
STRATEGIES TO REDUCE PROFESSIONAL ISOLATION

Consultative and Educational Opportunities Through Telecommunications

One means of increasing the professional resources available to rural practitioners is improvement of telecommunications networks, through which health professionals have access to consultants, literature databases, new technologies, and continuing education programs.

The KARENET system, operated by Texas Tech University's Health Sciences Center, places a computer terminal by each patient bed in participating rural hospitals, enabling direct consultative contact

Figure 13-1—Distribution of Area Health Education Center (AHEC) Programs by State, 1988


ALASKA
AHEC Program designed for the entire State
AHEC Program designed for portions of the State

SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Division of Medicine, "The Area Health Education Centers Program: Town and Gown Working Together to Improve The Nation's Health," Rockville, MD, 1988.

with specialists at the Health Sciences Center in Lubbock (*268*).[16] Another project, MEDNET, will be a two-way interactive video network linking Texas Tech specialists to rural physicians. The use of these programs is expected to decrease traveling time for patients and health providers, as well as improve occupancy rates in rural hospitals that would otherwise be obliged to refer problem cases to the Health Sciences Center (*268*).

Teleconference networks, such as the South Dakota Medical Information Exchange (SDMIX), established in 1981 at the University of South Dakota at Sioux Falls, are capable of reaching hundreds of people across hundreds of miles at relatively low cost (*259*). Strictly an audio system, SDMIX offers a series of 1-hour continuing medical education programs for physicians and additional programming for medical support staff. Unlike some teleconference networks, SDMIX is not a fixed network and thus can accommodate any site with a telephone, no matter how distant. Users at up to 57 sites can participate simultaneously (*259*).

A recent initiative at the National Library of Medicine (NLM) focuses on making NLM products and services available to health professionals in isolated rural and inner city areas (*422*). The NLM's Regional Medical Library Program is a computer-accessed network of nearly 3,000 medical libraries serving all 50 States. Libraries participating in the network have agreed to provide services to help health professionals identify, locate, and obtain information (*422*).

Health professionals in rural areas, however, may not have ready access to computers and telephone lines that enable them to use the service (*422*). Purchase of required hardware (e.g., computers, satellite sending and receiving equipment) may also be a major barrier to utilization of telecommunications technology, particularly for solo providers in isolated rural areas. (Some people have suggested third-party reimbursement for patient care-related telecommunications costs (*83*).) Other disadvantages of telecommunications technologies are their level of complexity and the training they may require on the part of physicians and other users. NLM has recommended additional funding for a program that would bring individual health professionals into the network, as well as for expansion of a grant program that would bring NLM's products and services to a larger number of isolated medical facilities (*422*).

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[16] The program was funded by the W.K. Kellogg Foundation, and hardware was provided by AT&T.

Opportunities for Vacation and Educational Leave

Some rural health professionals may be unable to take professional or personal leave because there is no one to replace them while they are absent. The "burnout" problem may be particularly severe for solo practitioners in isolated rural areas who are on call continuously. To address this problem, some States have developed special *locum tenems* services to provide relief for rural practitioners. For example, a Robert Wood Johnson Foundation-funded project in Montana is developing a registry of providers available for temporary placement in rural Montana communities (*126*).

Satellite clinic networks and physician-midlevel team practices can also help to reduce professional isolation. These strategies are discussed later in this chapter.

FEDERAL STRATEGIES TO ADDRESS ECONOMIC CONCERNS

The Federal Government has taken steps to increase Medicare payments to primary care and rural physicians. Other strategies to address economic concerns of rural practice—e.g., Federal and State educational loan repayment programs and other private sector efforts—are discussed later in this chapter.

The Resource-Based Relative Value Scale (RBRVS)

A number of statutory changes in Medicare payment to physicians have been aimed at increasing payment to primary care providers at the expense of payment for secondary care services. OBRA 87 (Public Law 100-203) introduced a number of incremental changes that included:

- permitting maximum annual increases in physicians' charges to Medicare to be higher for primary care services than for other services,
- setting minimum levels for prevailing charges for primary care services,[17] and
- authorizing bonuses above and beyond what Medicare would normally pay for physician services delivered in designated Health Manpower Shortage Areas (HMSAs) (see below).

OBRA 89 (Public Law 101-239) introduced more general payment reforms to further increase payment for primary care services. This law established a resource-based relative value scale (RBRVS) as the basis for Medicare physician payments as of January 1, 1992, to be phased in fully by 1996. Under the RBRVS, differences in payment among different types of physician specialists for the same service will be eliminated gradually over time, and a higher relative value than in the past will be placed on "evaluative and management services"—the types of services most often performed by primary care physicians (*475*). Unlike the current system, which bases payments on "customary, prevailing, and reasonable" charges for specific services within specified prevailing charge localities (see chs. 3 and 12), payments under the new system will be determined by a relative value scale that is based on three components: work, practice expenses, and malpractice expenses. Geographic adjustments[18] will be applied fully to practice expenses and malpractice, but only to one-fourth of the work component (which represents approximately 60 percent of each fee) (*475*).

Detailed projections of the impact of the RBRVS on physicians and beneficiaries cannot be made at this point because the new fee schedule has not yet been developed. The Physician Payment Review Commission (PPRC) predicts that rural physicians will fare well under the new plan because they are mostly primary care physicians, and because the geographic cost of living adjustment will only apply to one-fourth of the work component (*475*).

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[17] For most services, the Medicare fee is determined according to the prevailing charge for a particular service within a given locality. Under this legislation, however, the minimum allowable payment for primary care services is based on 50 percent of the national average prevailing charge, regardless of the local prevailing charge.

[18] Geographic adjustments lower payments in areas with lower costs of living.

Table 13-5—Changes in Physicians' Medicare and Total Revenues Under Medicare's Resource-Based Relative Value Scale (RBRVS), by Specialty[a]

Specialty	Percent change in practice revenues from: Medicare[b]	All sources[c]
Medical		
Internal medicine	17	4
Family practice	38	6
Dermatology	1	NA
Surgical		
Ophthalmology	-16	-8
General surgery	-10	-5
Orthopedic surgery	-7	-3
Urology	-5	NA
Thoracic surgery	-20	-9
Otolaryngology	6	NA
Obstetrics/gynecology	2	0
Hospital-based		
Radiology	-21	-7
Pathology	-25	NA

NOTE: NA = not available.

[a] These estimates are based on an earlier version of RB/RVS and do not reflect the effect of the geographic cost of living adjustment which will apply to 25 percent of the work component under the version adopted in Public Law 101-239.

[b] Medicare program payments are exclusive of balance bills (see text).

[c] Includes revenues from all payers. RBRVS only applied to Medicare revenues. Medicare assignment rates are assumed to be unaffected by the new RBRVS fee schedule and 100 percent of balance bills (at 120 percent of the prevailing charge) are assumed to be collected. Estimates of non-Medicare revenues are unavailable for some specialties.

SOURCE: Physician Payment Review Commission, Annual Report to Congress, 1989 (Washington, DC: PPRC, 1989), table 9-8.

Table 13-6—Change in Medicare Payments Under Medicare's Resource-Based Relative Value Scale (RBRVS) in Metropolitan and Nonmetropolitan Areas[a]

Area[b]	Specialty group	Percent change[a]
Metro county		
3,000,000+ population		
	Medical	10
	Surgical	-15
	All physicians	-4
1,000,000 to 3,000,000		
	Medical	14
	Surgical	-14
	All physicians	-5
Fewer than 1,000,000		
	Medical	2
	Surgical	-9
	All physicians	1
Nonmetro county		
25,000+ population		
	Medical	28
	Surgical	-5
	All physicians	12
Fewer than 25,000		
	Medical	34
	Surgical	-8
	All physicians	13

[a] Estimated changes reflect the difference between average 1988 charges (under reasonable charge payment) and fee schedule charges under the version of RBRVS adopted in 1989 (Public Law 101-239).

[b] Metro and nonmetro counties accounted for 84 and 16 percent (respectively) of Medicare allowed amounts in 1988.

SOURCE: Physician Payment Review Commission, Annual Report to Congress, 1990 (Washington, DC: PPRC, 1990), table 2-3.

Based on a simulated model, PPRC predicted that under the new system, specialties that will receive the greatest increases are those that engage in a greater proportion of "evaluative and management" as opposed to "procedural" services—e.g., family practice and internal medicine (table 13-5) (*475*). Surgical and hospital-based specialties (e.g., ophthalmology, radiology, and pathology) will lose the most. Within specialties, the impact of the new fee schedule will depend on the proportion of evaluative and management services performed (*475*).

Changes in overall Medicare reimbursement to physicians will probably be greater in rural than in urban areas, with the greatest increases in the smallest rural areas (*475*). Medical specialties as a group will increase their Medicare income in all but the largest urban areas; medical specialists in rural areas will have the greatest increases (table 13-6) (*475*).

Restrictions on balance billing will go into effect before the new fee schedule. "Balance billing" is the difference between what Medicare will pay (the "allowed charge") and what the physician actually charges the patient (the "billed charge"). Under the 1989 legislation, no physician will be permitted to charge beneficiaries more than 115 percent of the Medicare allowed charge. The full restriction will apply beginning in 1991 to physicians who charged within this limit in 1990, but it will be phased in more gradually for physicians who charged outside the limit in 1990 (limits will be 125 percent in 1991, 120 percent in 1992, and 115 percent thereafter) (*475*).

Balance billing restrictions are likely to have a somewhat negative effect on the income of physicians who have historically charged outside of newly allowed limits.[19] For example, a physician who gets $12 from Medicare for a visit and who charged $24 in 1990 will only be able to charge $15 in 1991—a 40 percent reduction in total income for that visit. Although beneficiaries in rural areas report balance billing to a slightly lesser extent than their urban counterparts (*475*), rural areas in which physicians balance bill more extensively undoubtedly exist. A preliminary analysis by PPRC found that Medicare income reductions due to balance billing limits will occur more frequently for primary care practices and practices in rural areas than for others, but that very few of these practices would experience reductions in excess of 5 percent of current Medicare revenues (*475*).

Because it could make primary care practice more economically attractive to physicians, the RBRVS may be a powerful long-range strategy for improving the supply of primary care specialists. This could, in turn, improve the rural supply of physicians by expanding the pool of specialists most needed in those areas. On the other hand, its impact on the geographic distribution of primary care physicians may be limited due to competing urban demands for these providers (e.g., by health maintenance organizations).

Medicare Bonus Payments

OBRA 87 (Public Law 100-203) authorized a 5 percent bonus on Medicare reimbursement for all physician services provided in nonmetro class I and class II geographic primary care HMSAs (see ch. 11 for discussion of HMSAs). The objective was to increase access to physician services for Medicare beneficiaries residing in these areas by: 1) attracting physicians to these HMSAs, and 2) inducing physicians already in the areas to stay by offering them higher fees. OBRA 89 (Public Law 101-239) increased the bonus to 10 percent and expanded area eligibility to all rural primary care HMSAs (including population and facility designations), effective January 1, 1991.

As of January 1989, all Medicare carriers[20] were required by the Health Care Financing Administration (HCFA) to post information about the bonus provision in their periodic bulletins, which are distributed to all physicians practicing within their area (*110*). The bulletins listed qualifying HMSA counties within each carrier's area. Once physicians have identified qualifying sites of service, they indicate by special codes on their claim forms which services were provided at those sites. The bonus is then automatically paid to the physician or physician group on the claim form.[21] Individual claims are not verified by the carrier, although HCFA requires that carriers conduct an annual audit of a random sample of at least 10 claims for the top 3 percent of eligible physicians to determine the validity of those claims (*110*).

The bonus program entails a number of problems and uncertainties. First, it is not clear whether a 10 percent bonus on Medicare payments is sufficient to attract or retain physicians in HMSAs (*242*). Although physicians have been found to respond to increased Medicare and Medicaid reimbursement by accepting more Medicare and Medicaid patients or by providing increased care to patients they already see (*161,266,395,508,564*), the strength of the incentive will vary depending on the Medicare or Medicaid caseload of the physician. The increase in payment rates should result in increased income for many physicians, however. One analysis of rural physician reimbursement found that a 7 percent increase in reimbursement rates (from all sources) would produce a 26 percent increase in income (*710*).[22]

Second, the primary care HMSA may not be the most suitable tool for identifying areas where Medicare beneficiaries have poor access to services.

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[19] Studies have shown that balance billing is strongly related to beneficiary medical costs. A large proportion of balance billing is concentrated among a small group of beneficiaries with high medical costs (*475*). The geographic locations of these beneficiaries have not been studied.

[20] Medicare Part B reimbursement is handled through 48 insurance carriers. Physicians submit their claims to the carriers for reimbursement, and the carriers in turn submit reimbursement totals to the Health Care Financing Administration (HCFA) on a quarterly basis.

[21] Physician services provided in certified Rural Health Clinics (RHC) do not qualify for the bonus. RHCs receive cost-based rather than prospective reimbursement for physician services under Public Law 95-210 (see ch. 3).

[22] The parameters used in this model were based on only one of the case study sites, so the exact figures will not apply to all rural practices. The finding that a given increase in reimbursement rates can produce a greater increase in physician income, however, applies generally.

Legislatively, the bonus program applies to all physician services rendered in the designated areas, regardless of the physician's specialty. Primary care HMSA designation criteria however, do not consider the presence of all physician specialists. In particular, they may fall short of identifying areas with low availability of nonprimary care services. The criteria include specialists who are less likely to see Medicare patients (e.g., pediatricians and obstetricians) but exclude nonprimary care specialists who may have large Medicare caseloads.[23] HCFA and the Bureau of Health Care Delivery and Assistance (BHCDA) have received complaints from psychiatrists in designated psychiatric HMSAs[24] who felt they should also be receiving the bonus.

As currently implemented, it is likely that the program is affecting a large number of subspecialists who travel *to* qualifying areas and provide services, as well as physicians whose practices are actually located in these areas. From the information provided to HCFA by the carriers, however, it is impossible to determine what types of physicians are receiving the bonuses.

Third, identification of HMSA boundaries has been problematic, since they do not always conform to easily identified county boundaries. Physicians in sub-county HMSAs must determine which of their service sites are eligible based on maps provided by HCFA (*110*). These maps must be frequently updated to reflect changes in HMSA designations (*110*).

Fourth, the effectiveness of the incentive may be reduced by the instability of the HMSA designation. HMSAs are reviewed at least once every 3 years (see ch. 11), and since designation is dependent on physician-to-population ratios, physicians locating in an HMSA[25] could in fact precipitate its dedesignation, discontinuing eligibility for the bonus. In at least one instance, a rural physician with a large Medicare caseload who had been receiving the 5 percent bonus decided to leave the area when it lost its designation (and eligibility for the bonus) (*430*).

Finally, evaluation of the program is seriously hampered by lack of data regarding the number and percentage of qualified physicians receiving the bonus. In the third quarter of 1989, when the program was fully implemented, $425,000 were spent on bonus payments (*456*).[26] Carriers report to HCFA the total number of checks written each quarter, but the total number does not distinguish between checks to individuals and checks to groups of physicians (*110*). Carriers could provide information to DHHS regarding the types of services for which physicians are receiving bonuses, since such information is included on computerized claims forms, but they are currently not required to do so.

TARGETED STRATEGIES FOR AREAS OF ACUTE AND CHRONIC SHORTAGE

Scholarship and loan repayment programs tied to a service obligation have been used successfully by both the Federal and State governments to influence the supply of health professionals in rural and underserved areas. A 1971 study of 11 such State programs operating between 1958 and 1969 found that 60 percent of participating students served their obligations by practicing in rural areas, 38 percent bought out of their obligations,[27] and 2 percent defaulted on their obligations (*372*). At the Federal level, the NHSC has provided service-contingent scholarship and loan repayment opportunities, and a separate program has provided service-contingent scholarships to NPs. A 1986 study by the BHPr concluded that service-contingent student aid programs with high buyout penalties were successful mechanisms for short-term recruitment of health professionals to rural areas and areas identified as being medically underserved (*685*). This study also found that programs paying attention to the continuing needs of obligated professionals in such areas may be more likely to retain those professionals past the period of obligation (*685*).

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[23] See ch. 11 for a description of primary care HMSA designation criteria.

[24] Psychiatry and primary care are the only physician specialties for which the Federal Government currently designates HMSAs (see ch. 11).

[25] Or NHSC physicians completing their obligated service who decide to stay in the HMSA and are then considered in the physician-to-population ratio calculation (see ch. 11).

[26] This figure may be an overestimation since it includes some second quarter payments which were delayed due to processing difficulties.

[27] Scholarship and loan funds under all of these programs were repayable at the original amount plus interest. Due to the large percentage of students choosing to buy out of their obligation, some State and Federal programs have increased the buyout penalties to double or triple the original loan or scholarship amount plus interest.

Other strategies for addressing the needs of remote communities include increased use of MLPs and satellite clinics.

The National Health Service Corps

The NHSC has been the single most direct Federal program addressing health personnel distribution during the last two decades. Since 1971 it has placed over 16,500 health professionals[28] in federally designated HMSAs (*663*). The genesis of the program was the Emergency Health Personnel Act of 1970 (Public Law 91-623), which authorized the Secretary of the Department of Health, Education, and Welfare (DHEW) to assign commissioned officers in the Public Health Service in areas designated as having critical shortages of health manpower and services. In 1971, 20 physicians in the Public Health Service Commissioned Corps located in these areas. To expand this small corps of health professionals, Congress authorized a scholarship program in 1972 (Public Law 92-585) that obligated professionals to similar service. In 1987, a small authorization was made available for two loan repayment programs: one administered by the Federal Government, and the other administered by the States. In 1988, funding for the scholarship program was largely discontinued,[29] and a Volunteer Program was established to recruit non-obligated health professionals to HMSAs.

Sources of NHSC Personnel

The Scholarship Program—The NHSC Scholarship Program was first funded in 1974 at a level of $3 million (table 13-7) (*618*). Funding peaked at $79.5 million in 1980, with over 6,000 new or continuing scholarships, and then decreased steadily until 1989, when no new funds were appropriated. Scholarship recipients undergo an average of 6 years of education before they are available to serve (*346*); consequently, the peak number of professionals serving their obligation occurred in 1986 (table 13-7) (*618*). Over 13,000 students have been awarded scholarships under this program, and approximately 10,400 eventually served (or are serving) their obligation in the field (*689*). Some 70 percent of these served in "rural" areas (including those in Indian Health Service sites), and 30 percent served in "urban" areas (*689*).[30]

The overwhelming majority of scholarships were awarded to medical students (both allopathic and osteopathic); the rest went to students in a variety of other health professions (including dentistry, nursing, pharmacy, optometry, and veterinary medicine) (*662*). Students could qualify for up to 4 years of scholarship if they indicated an interest in primary care and promised to serve 1 year in a federally designated HMSA for each year of scholarship received, with a minimum 2-year service obligation. Payback began when students had completed their training, although some physicians opted to serve before or during specialty training (*662*). As of January 1990, 80 percent of scholarship recipients had served or were serving their obligation, 16 percent had repaid their scholarship awards,[31] and 4 percent had defaulted (*346*). The default rate is expected to decline with a new amnesty program, which permits defaulters to pay back their obligation through service (*662*).

The Loan Repayment Program—1987 legislation (Public Law 100-177) authorized the creation of two programs through which the Federal Government would subsidize the repayment of educational loans health professionals in return for service in designated HMSAs.

The Federal Loan Repayment Program recruits providers and repays their loans at a rate of up to $20,000 a year if they provide primary care health services in a qualifying HMSA (*661*). Participants must serve from 2 to 4 years (*661*). The program placed 132 participants in 1988 and 1989 (table 13-7) (*659*).

The State component of the program provides Federal monies to States for the repayment of health professionals' student loans. States must cover all administrative costs, and they must provide at least 25 percent of total loan repayment funds (*661*). Qualifying areas for State loan repayment placements are determined by the individual States,

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[28] As of December 31, 1989, the total number of health professionals placed through the NHSC since the beginning of the program was 16,560. This includes all health professions disciplines and all recruitment categories (i.e., volunteer, obligated, and commissioned corps) (*663*).

[29] A small amount of money was available for scholarships in fiscal year 1989 due to reprogramming of certain loan repayment funds (see table 13-7).

[30] The NHSC defines "rural" as nonurbanized areas, some of which are located within metro counties (*1*).

[31] In the early years of the program, scholarship recipients who did not serve in HMSAs had to repay the principal plus interest; in later years, the penalty was increased to triple the principal plus interest (*689*).

Table 13-7—National Health Service Corps: Funding and Participants in Field, Scholarship, and Loan Repayment Programs, Fiscal Years 1971-89

	Field Program[a]		Scholarship Program[b]				Loan Repayment Program[c]	
				Awards				
Fiscal year	Appropriation ($ thousands)	Year-end field strength[d]	Appropriation ($ thousands)	New	Continuation	Total	Appropriation ($ thousands)	Awards
1971	$3,000	20	NA	NA	NA	NA	NA	NA
1972	12,574	181	NA	NA	NA	NA	NA	NA
1973	11,000	330	NA	NA	NA	NA	NA	NA
1974	9,787	405	$3,000	372	0	372	NA	NA
1975	14,055	488	22,500	1,499	365	1,864	NA	NA
1976	28,662	600	22,500	1,759	3,442	5,201	NA	NA
1977	24,354	690	40,000	2,092	1,481	3,573	NA	NA
1978	39,696	1,425	60,000	3,150	1,907	5,057	NA	NA
1979	62,969	1,826	75,000	2,380	4,029	6,409	NA	NA
1980	74,075	2,080	79,500	1,772	4,387	6,159	NA	NA
1981	84,739	2,338	63,400	162	4,175	4,337	NA	NA
1982	95,078	2,782	42,500	160[e]	2,289	2,449	NA	NA
1983	93,391	2,865	15,458	144[e]	793	937	NA	NA
1984	91,000	2,609	6,300	69[e]	98	167	NA	NA
1985	75,000	2,958	2,300	37[e]	12	49	NA	NA
1986	58,500	3,304	2,201	36[e]	7	43	NA	NA
1987	39,884	2,742	2,300	46[e]	3	49	NA	NA
1988	37,442	2,097	2,202	36[e]	4	40	915	20
1989	39,866	1,948[f]	2,953[g]	43[e]	6	49	3,953	112

NOTE: NA = not applicable.

[a] The NHSC field budget funds the salaries of federally employed assignees, the travel costs of new and current assignees, various clinical support activities, technical assistance to States, and recruitment and retention activities of the program. From 1971 through 1978, all NHSC field placements were NHSC-salaried. Since 1979, there has been a trend away from NHSC-salaried positions and towards other types of placement. From 1983 through 1988, portions of the original NHSC Field Program appropriations were reprogrammed into the budget for Community and Migrant Health Centers to help pay the salaries of NHSC assignees in those centers. Field Program appropriations in this table exclude reprogrammed amounts.

[b] The NHSC scholarship program provided scholarships to health professions students in exchange for service in a designated shortage area when they completed their training. The minimum service obligation was 2 years, and the majority of scholarships went to medical students.

[c] Figures in this table refer only to the Federal Loan Repayment Program.

[d] The number of NHSC personnel in the field at the end of the calendar year. Includes personnel in all health disciplines, both volunteer and obligated, in both NHSC and IHS sites.

[e] Multiyear awards.

[f] This figure was quoted over the telephone by NHSC staff in January 1990.

[g] Reprogrammed from State loan repayment funding for 1989. Originally, no funding was appropriated for new scholarships in 1989, but since only 1 million of the 3.9 million appropriation for the State Loan Repayment Program was used in 1989, the remainder was used to award 43 new scholarships for exceptionally financially needy medical students.

SOURCES: U.S. Congress, Office of Technology Assessment, Clinical Staffing in the Indian Health Service, Special Report (Washington, DC: OTA, February 1987); U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Care Delivery and Assistance, unpublished data provided by G. Goubeau, Nov. 9, 1989.

Table 13-8—Volunteer Placements Made Through the National Health Service Corps (NHSC) Recruitment Branch, 1988 and 1989

	1988[a]			1989		
Type of placement	Physicians[b]	Other[c]	Total	Physicians[b]	Other[c]	Total
NHSC[d]	191	4	195	234	44	278
NHSC Loan Repayment[e]	18	2	20	97	15	112
Indian Health Service (IHS)[f]	62	476	538	123	540	663
Other[g]	8	53	61	17	253	270
Total volunteer placements[h]	279	535	814	471	852	1,323

[a] Figures for 1988 are estimates, since the program database had not yet been established.

[b] Includes MDs and DOs.

[c] Includes all nonphysician health personnel (e.g., nurse practitioners, physician assistants, dentists, nurses, pharmacists).

[d] Includes individuals matched to Federal community and migr[illegible] health centers (C/MHCs) or to NHSC freestanding sites. Most individuals are hired by the C/MHC, but a small proportion may be salaried directly by the Federal Government. Individuals at freestanding sites establish their own practices.

[e] All NHSC Federal Loan Repayment recipients are recruited through the NHSC recruitment branch. They are not true "volunteers," because they are under obligation to serve in HMSAs, but are included in the official volunteer placement count.

[f] Includes all volunteer health professionals recruited to IHS facilities and service areas through the NHSC recruitment branch and through IHS recruitment efforts, but excludes those participating in the IHS Loan Repayment Program.

[g] Includes (a) individuals matched to non-federally funded sites in HMSAs where the community is able to support the practitioner's salary; (b) individuals placed in the Bureau of Prisons or other Federal program sites besides C/MHCs and freestanding NHSC sites.

[h] All categories may include individuals recruited into the Public Health Service Commissioned Corps through the NHSC volunteer recruitment program.

SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Care Delivery and Assistance, Division of National Health Service Corps, unpublished data provided to OTA on Dec. 18, 1989 and Jan. 18, 1990.

although the criteria are subject to approval by BHCDA (*662*). States also set their own priorities concerning types of health personnel to recruit. In fiscal year 1988, approximately $1 million was awarded to seven State programs (*661*). In 1988, the State programs placed 74 physicians, 2 MLPs, and 5 RNs, falling short of the 110 total placements anticipated for that year (*689*).

The Volunteer Program—Some providers may not be interested in or eligible for scholarships and loan repayment but may still be interested in practice in rural or underserved areas. The NHSC Volunteer Program, officially begun in 1988, acts as a recruitment service for the NHSC, the Indian Health Service, other Federal facilities and programs (e.g., Federal prisons, federally funded community and migrant health centers), and other HMSA facilities or communities (*662*). The program is advertised by the regional offices, which make lists of placement sites available to medical residency programs and other health professional schools. These lists include all HMSAs, regardless of degree of shortage grouping or priority ranking. Although higher priority HMSAs are included on the volunteer placement list, volunteers, with few exceptions, tend to go to the lower priority sites (*662*).[32] In 1989, the program matched 1,323 volunteers, of which 36 percent were physicians, to qualifying sites (table 13-8) (*663*). Most physicians recruited are placed in NHSC sites, while most other health personnel are placed in Indian Health Service sites (table 13-8) (*663*).[33]

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[32] See ch. 11 for a description of the various placement opportunity lists used by the NHSC for scholarship, loan repayment, and volunteer personnel.

[33] This may be due in part to the fact that Indian Health Service sites tend to be hospitals, which have a greater need for nurses and other nonphysician health personnel than NHSC and other sites (*662*). Also, as noted in the table, the IHS figures include volunteer matches made through recruitment efforts other than NHSC.

Table 13-9—Federally Salaried[a] Personnel in the National Health Service Corps (NHSC) by Obligation Status, 1989

Employment status	Obligation Status		
	Scholarship obligors	Nonobligated[b] or loan repayment	Total
Commissioned corps	20	118	138
Civil service	124	16	140
Total	144	134	278

[a]Personnel in the NHSC who receive their salaries directly from the NHSC.

[b]Includes some scholarship recipients who completed their service obligation but decided to stay on in the NHSC commissioned corps.

SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Care Delivery and Assistance, Division of National Health Service Corps, unpublished data provided to OTA Jan. 24, 1990.

Table 13-10—National Health Service Corps Providers by Discipline, 1981 and 1989[a]

Provider discipline	Fiscal year	
	1981	1989
Physicians	7,272	2,187
General practice	1,098	84
Family practice	2,038	614
Internal medicine	2,088	671
Pediatrics	968	286
Obstetrics/gynecology	454	242
Psychiatry	417	215
Other	209	75
Dentists	957	98
Nurse practitioners	319	17
Physician assistants	111	0
Nurse-midwives	68	1
Podiatrists	111	27
Other	319	17
Total	9,157	2,347

[a]Numbers in this table differ from year-end field strength numbers in table 13-7 because they reflect the number of providers serving at any time from Oct. 1, 1980 to Sept. 30, 1981 or from Oct. 1, 1988 to Sept. 30, 1989 rather than the number of providers present in the field at the end of the calendar year. Numbers include both obligated and nonobligated providers.

SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Care Delivery and Assistance, Division of National Health Service Corps, unpublished data provided to OTA Feb. 7, 1990.

Commissioned Officers in the NHSC—Commissioned officers in the NHSC are a subset of the Public Health Service (PHS) Commissioned Corps. They are a mobile cadre of health professionals who receive their salaries directly from the NHSC and are deployed in high priority HMSAs. NHSC scholarship or loan repayment recipients as well as nonobligated volunteers can choose to join the NHSC Commissioned Corps if positions are available. Like other PHS Commissioned Corps personnel, however, they are subject to periodic transfer from one site of service to another.

As funding for the NHSC Field Program has decreased, so have the number and proportion of NHSC commissioned officers and other NHSC-salaried personnel.[34] While commissioned officers once represented the majority of field staff, they now make up only a small percentage. Of the 1,948 total field staff in 1989 (table 13-7) (*659*), only 278 (14 percent) received their salaries through the NHSC (table 13-9) (*663*). Of these 278, approximately one-half were commissioned officers and the remainder were civilian employees (table 13-9) (*663*).

Placement of NHSC Personnel: The Field Program

The NHSC Field Program places personnel from scholarship, loan repayment, and volunteer programs in qualifying sites. The majority of field placements have been and continue to be physicians (table 13-10) (*663*). MLPs (nurse-midwives, NPs, and PAs) represented a significant proportion of the total field staff in 1981, but their numbers have dropped to almost zero (table 13-10) (*663*). The number of dentists as a proportion of all NHSC providers has also decreased (table 13-10) (*663*).

The four basic mechanisms used to place NHSC personnel are:

- *Federally Salaried*—providers receive their salaries directly from the NHSC;
- *Private Practice Assignment ("PPA")*—providers are salaried through facilities that have Federal grant money (from non-NHSC sources) dedicated for that purpose (e.g., fed-

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[34]In addition to NHSC commissioned officers, some civilian NHSC personnel also receive their salaries directly from the NHSC.

erally funded Community and Migrant Health Centers);

- *Private Practice Salary*—providers are salaried through projects or facilities that *do not* have Federal grant money dedicated for that purpose, but who are located in qualifying areas;
- *Private Practice Option (''PPO'')*—providers set up their own private practice in an HMSA, without any financial assistance from the Federal Government (*662*).[35]

Until 1979, the year in which the first large group of scholars came out of the ''pipeline,'' the majority of field placements were volunteers or commissioned officers (*662*). In 1979, the field strength more than doubled due to the addition of obligated scholars. It peaked in 1986, with 3,304 NHSC personnel[36] practicing throughout the United States. Field strength decreased by 36 percent from 1986 to 1988 (table 13-7) (*618,659*), and it will continue to decrease as the ''pipeline'' dries up and current personnel complete their service obligations. NHSC Field Program funding has declined dramatically since its peak in 1983 (table 13-7) (*618,659*). The number of HMSA designations and the number of physicians needed to remove these designations, however, have remained relatively stable during this time (see ch. 11).

Problems and Changes Over Time in NHSC Programs

Over the years, changing needs of underserved communities, changing preferences of health professionals, and reductions in the NHSC budget have caused the NHSC to adapt its recruitment and placement strategies.

Sources of NHSC Personnel—To earn scholarships, students make commitments from 4 to 8 years (the average has been 6 years) before they are due to serve (*346*). However, during the course of their studies many factors (family characteristics, career interests, etc.) can change their ultimate specialty and location preferences. In some cases, NHSC scholarship recipients changed their primary care preference to nonprimary care specialties (*662*), undermining chances that communities with small service populations would be able to retain them beyond their period of obligated service.

Part of the rationale behind the transition to loan repayment was that commitments near the end of training would prove more valid than early commitments as indicators of enduring interest in primary care and practice in an underserved community (*689*). In addition, a loan repayment program would recruit personnel to the field immediately, while a scholarship program has a long ''pipeline'' between receipt of scholarship and start of service. Moreover, since potential loan repayment participants would be aware of the specific placement opportunities available *before* signing a contract, they might make more informed decisions and be less likely to ''default'' on their obligations (*689*).

Loan repayment and scholarship programs may attract different types of providers (*689*). Physicians and other health professionals with high educational debts may find NHSC loan repayment an attractive incentive. Scholarship programs may be more effective for recruiting nurses, MLPs, and allied health professionals because their educational costs and associated debts are lower than those of physicians. The NHSC Scholarship Program also attracted many minority and disadvantaged students who otherwise might not have been able to afford medical school. Of scholarship recipients who completed their obligations and for whom data are available, 17 percent were black, and 9 percent were from other minority groups (*689*).

Although the Federal Loan Repayment Program gave priority to NPs and CNMs, 115 of the total 132 placements in 1988 and 1989 were physicians, because few CNMs and NPs had applied (*662*). Although one explanation for their lower application rate is the lower debt burden of CNMs and NPs,[37] it is likely that lack of information was also a major reason for the lack of candidates. It has been reported that over one-half of CNM training program directors had not heard of the program as of fall 1989 (*191*).

The State Loan Repayment Program was intended to improve recruitment by decentralizing efforts and encouraging State investment in loan repayment activities. The 25 percent matching requirement, however, may dissuade some of the neediest States from applying. This concern, as well as others within BHCDA about the success of the program during its first year, prevented the planned expansion of the program in its second year.

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[35] Technical assistance in site development and practice management is provided through regional and State NHSC offices.

[36] The ''year-end field strength'' column in table 13-7 includes commissioned and obligated NHSC field staff in all health professional fields.

[37] Some contend that MLPs, because their professional income is considerably lower than that of physicians, may find loan repayment an attractive incentive even with relatively small debt burdens (*191*).

In fiscal year 1989, BHCDA officials requested congressional permission to redirect $2.9 million originally appropriated for new State Loan Repayment programs to Federal NHSC scholarships (*224*). During the first year of the program, the original seven State grantees had difficulty finding sufficient numbers of participants to use awarded funds (*689*). According to State grantees, however, BHCDA had given them insufficient time in which to recruit participants and make awards. States were notified about the program in September of 1988, and they had only 1 month to identify qualifying health professionals.[38] Inability to use funds for repayment of undergraduate loans, a low maximum allowable yearly repayment rate, and a lack of candidates with sufficient levels of debt have also been cited as possible reasons for States' limited success during the first year (*689*).

The new NHSC Volunteer Program has succeeded in attracting a significant number of personnel since its inception in 1988, but it might have a greater impact if additional incentives were available to practitioners serving in HMSAs. As of 1991, physicians locating in rural primary care HMSAs will be eligible for a 10 percent bonus on Medicare reimbursement (Public Law 101-239). Additional incentives might include reimbursement for travel for practitioners and spouses making site selection visits, and tax breaks or lump-sum bonuses for health personnel who practice in HMSAs. Volunteer recruitment is also hampered by a lack of recruiting staff in the Federal and regional offices (*662*).

Methods of Placing NHSC Personnel—Most field placements were NHSC-salaried up until 1979, but thereafter a shift toward other salary sources occurred (*224*). In 1988, only 15 percent of NHSC field positions (excluding those at Indian Health Service sites) were NHSC-salaried; 54 percent were PPA; 23 percent were private practice salary; and 8 percent were PPO (*659*). The changing pattern of salary and placement mechanisms reflects a variety of concerns.

In the early 1980s, policymakers supported the use of the PPO as a way of reducing the Federal financial burden accruing from the growing number of obligated scholars emerging from the pipeline. However, in the mid-1980s, the NHSC reduced the number of PPO placements in response to concerns about the short-term and long-term viability of independent private practices in small, remote communities (*662*).

The NHSC had once also held that the PPO would improve retention by increasing physicians' personal investment in a location (*78*), a position which has since been questioned. Originally, PPO obligors were only permitted to locate in areas with economies sufficient to sustain a private practice, but this requirement was eliminated in the Health Programs Extension Act of 1980 (Public Law 96-538), presumably to allow PPOs to fill the gaps left by the decreasing number of NHSC-salaried physicians. Faced with drastic decreases in funding for the NHSC field program, scholarship graduates were sometimes told that the PPO was their only option short of triple-indemnity repayment or default (*78*). (Practice management and other technical assistance were presumably available through a State contractor's office or through the regional office, but the degree of support from these offices may have varied greatly.)

During the 1980s, use of the private practice assignment (PPA) increased in response to the growing need for physicians and other health personnel in federally funded community and migrant health centers (C/MHCs), as well as to the same budgetary concerns that inspired the increased use of the PPO placement (*662*).[39] The shift to PPA placements also reflected concerns raised by experience with the PPO. The NHSC had come to believe that placing personnel within structured systems of care was more stable than placing them in solo practice in communities unable to support such practices (*662*).

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[38] Information on specific State programs was gained through telephone conversations with program administrators.

[39] To cover the salaries of the growing number of PPA personnel, substantial portions of the original NHSC Field Program appropriations were reprogrammed into the budget for C/MHCs from 1983 through 1988 (*224*). For example, in 1987, $15.5 million were reprogrammed to C/MHCs. NHSC-salaried personnel are present in some C/MHCs, but the majority of NHSC personnel in these facilities are PPA. Some C/MHCs are not in designated HMSAs, but may be approved for NHSC obligated personnel placement if they demonstrate sufficient need (*662*).

As a result, C/MHCs have come to depend heavily on the NHSC for physicians. PPAs accounted for more than one-half of all NHSC placements in 1988 (*659*), and obligated NHSC physicians accounted for over one-half of all physicians in C/MHCs in 1989 (*411,414*). Even within the more structured PPA settings, however, retention of NHSC personnel is a problem. Financial constraints prevent PPA sponsors from offering salaries competitive with those in the private sector; consequently, PPAs often leave C/MHCs once their periods of obligation end (*414*).

The Changing Role of Commissioned Officers in the NHSC—In the late 1970s and early 1980s, physicians whose obligations were ending were told they could remain on salary in their communities if they joined the NHSC as commissioned officers, and a number of them did so (*662*). In 1985, however, the Public Health Service (PHS), as part of a general effort to revitalize its Commissioned Corps, reassigned all commissioned officers, including those in the NHSC (*662*). Many opted to leave the Corps when asked to move (*78*). This reaction brought to light what might be an inherent contradiction between the goals of the NHSC and the PHS Commissioned Corps. While the major goal of the NHSC is to recruit and retain health professionals in areas of need, the goal of the PHS Commissioned Corps is to maintain a mobile cadre of health professionals who can be transferred as needed. Some critics have proposed that the PHS waive the transfer requirement for NHSC commissioned officers currently serving in remote, high-need areas (e.g., some frontier counties) (*389*).

Evaluating the Impact of the NHSC

NHSC success varies depending on its perceived goal. If the goal is to place providers in high-need areas, without regard to their length of service in these areas, the NHSC has been very effective; 80 percent of scholarship recipients completed their obligation or were still serving in 1990 (*346*). Until the mid-1980s, communities served by NHSC providers could rely on NHSC replacements if these providers decided to relocate on completion of their obligations. Such communities might lack continuity of service, but they were at least assured personnel. However, recent declines in the number of NHSC personnel will result in fewer replacements for these communities. The Scholarship Program placed approximately 200 practitioners in 1988 and approximately 120 in 1989 (*662*).[40] In 1991, only 74 scholars will be available for placement (*716*).

If the goal is to create lasting systems of care, the NHSC could also be regarded as having been reasonably effective. Thirty-five percent of NHSC scholarship recipients who completed their obligations in fiscal year 1989 either remained at their service site or relocated to another HMSA (*346*).[41] A national survey of physicians practicing in small (fewer than 10,000 residents) rural counties found that 15 percent of these physicians were either currently or formerly affiliated with the NHSC (*405*). A study of Virginia PPO physicians who completed their obligations between 1981 and 1986 indicated a practice site retention rate of close to 45 percent (*704*).[42]

The Volunteer and Loan Repayment Programs have been unable to fill the gap left by the dwindling supply of obligated NHSC scholars. The 635 physicians[43] recruited to HMSAs through the Volunteer Program in 1988 and 1989 (table 13-8) (*663*) represent only 15 percent of the estimated number of physicians needed (4,104) to remove all primary care HMSA designations in 1988 (see table 11-5). The 115 physicians placed under loan repayment during the same period represent only an additional 3 percent of physicians needed. MLPs can substitute for physicians in some of these sites, but the NHSC has recruited very few in recent years (table 13-10) (*663*).

Service-Contingent Scholarships for Nurse Practitioners and Nurse-Midwives

From 1978 through 1981, the Federal Government provided $3.2 million to NP and nurse-midwife training programs to fund service-contingent scholarships for students (*720*). Just over 400 students were awarded scholarships over the 3-year period.

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[40] Numbers include nonphysician personnel.

[41] A telephone survey in late June 1989 of all physicians due to complete their obligation in July asked whether or not they were remaining in their current practice, or moving to an HMSA or non-HMSA.

[42] Seven of the 29 PPO physicians departed to enter specialty training programs.

[43] Excludes Federal Loan Repayment Program participants.

Although administratively separate from the NHSC, receipt of scholarship under this program was also tied to a service obligation in a primary care HMSA. Unlike the NHSC program, however, the burden of finding a placement site was on the participant, and many participants had considerable difficulty finding sites where they could serve.[44] Participants complained that their schools had not made explicit the requirements of the scholarship contract and sometimes had even given them false information (*720*). In spite of the reported difficulties, however, from 70 to 75 percent of the students served their obligations, approximately 15 percent repaid their awards, approximately 4 percent were granted waivers, and only 5 percent defaulted (*720*).

Satellite Clinics and Increased Utilization of MLPs in Rural Areas

The satellite clinic model can address the health care needs of small and remote communities while offering the economic and professional advantages of group practice arrangements. In this model, physicians or MLPs from a group practice located in a more urbanized community travel to remote sites to see patients for a few days each week. Alternatively, some practitioners may staff the satellite clinics full-time to reduce the time spent in transit between sites. The physician-MLP team model can successfully address the needs of remote rural communities (see box 13-E). It can also help to ease the professional isolation and long work hours of rural physicians. MLPs have been found to increase physician productivity (*617*).

Historically, MLPs have been more likely than physicians to locate in rural and underserved areas, but increasing demand for their services in urban settings may change this (see ch. 10). In some States, restrictive nurse practice acts or reimbursement policies also influence the practice arrangements of MLPs and may discourage them from rural practice altogether (see ch. 12). In other States, MLP-staffed clinics can be very effective (box 13-E).

Although overall trends in the numbers of rural clinics staffed only by MLPs are not known, a study of 44 such clinics which had existed in 1975 found that many had either closed or converted to physician-only or physician-MLP staff structures (*103*). The clinics with physicians on staff saw more patients per week, charged higher fees, and relied to a lesser extent on nonrevenue funding sources than those staffed solely by MLPs (*103*).

RECRUITMENT AND RETENTION IN THE PRIVATE SECTOR

Local Hospitals

Physicians

Rural hospitals, which rely on local physicians for patient referrals, have a vested interest in the availability of office-based physicians within their service areas. Hospitals may encourage physicians to locate or to stay in the area to stay by offering them various types of assistance, including low-interest loans, subsidized office space, and guaranteed income levels (see ch. 7).

Because such arrangements can be viewed as compensation to a physician from an entity to which he or she refers patients, they may technically fall within the proscriptions of Medicare's antikickback provisions (see ch. 7).[45] Many rural hospitals had hoped that recently proposed "safe harbor" regulations would provide some certainty in this area and would uphold the legality of recruitment and retention strategies that have proven essential for institutional survival. As discussed in chapter 7, however, the proposed regulations (issued in January 1989) offered little protection for any of these strategies.

Nurses

A study of nurses in rural Mississippi hospitals (*453*) attempted to identify retention strategies nurses perceived as potentially effective. Those most frequently mentioned included opportunities for upward career mobility, tuition reimbursement for educational upgrade, bonuses based on years of service, improved pension plans, 24-hour clinical consultations, higher salaries for night and weekend shifts, and conflict management and resolution mechanisms (*453*). A recent study found that wage increases have repeatedly succeeded in reducing past nurse shortages but have not kept pace with the present nursing shortage (*7*).

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[44] Reasons mentioned included: competition for sites with NHSC personnel, who were placed through Federal and regional offices and were given priority; inability of facilities in qualifying areas (e.g., community health centers) to pay participants' salaries; and unwillingness of participants to relocate to qualifying sites (*720*).

[45] Sec. 1128B of the Social Security Act, 42 U.S.C. §1320a-7b.

Box 13-E—Examples of Midlevel Practitioner and Satellite Clinics in Rural Areas

Oregon—Sixteen of Oregon's 44 rural primary care clinics were staffed solely by NPs or PAs in 1988 (*81*). Oregon law permits NPs to own and operate their own clinics and to practice without direct physician supervision. Legislation passed in Oregon in 1979 enabled PAs in State-designated medically disadvantaged areas to practice with off-site physician supervision and to prescribe and dispense certain medications. Medicare and Medicaid reimburse for the services of PAs, NPs, and CNMs in clinics certified under the Rural Health Clinics Act (Public Law 95-210), and all private insurance plans in Oregon are required by statute to reimburse for NP services. Although some private plans do not cover the services of PAs, legislation currently pending in Oregon would require them to do so (*81*).

A clinic in Condon, a town of 750 people that is 70 miles from the nearest full-service hospital, is staffed by two full-time PAs who are supervised by a family physician 90 miles away (*81*). The supervising physician sees patients at the clinic for four hours once every two weeks, and maintains daily telephone contact with the PAs. The PAs, who offer a wide range of basic primary care services, are accessible on a 24-hour basis. X-rays are read initially by the PAs and diagnosis is confirmed by appropriate specialists. A radiotelephone is used to transmit EKGs to cardiologists in Portland for final interpretation. The clinic is certified under Public Law 95-210 and is supported through a special tax district. It has attracted a dentist and a mental health specialist who lease office space and see patients in the clinic 1 or 2 days a week (*81*).

A clinic in Dexter is owned by two NPs and is staffed by the owners and an additional NP (*81*). Annual increases in patient visits continue, indicating a high level of acceptance of the clinic staff by the community. Mental health services are provided on a contractual basis by a mental health NP in a nearby town. Unlike the Condon clinic, the Dexter clinic is not supported through a special tax district, and with 40 percent of its service population uninsured, it has had to adopt strict payment requirements. Financial constraints limit the scope of primary care services it can provide. For example, X-rays must be taken at the consulting physician's office until the clinic raises enough money for its own equipment (*81*).

Kentucky—A physician in Hyden, Kentucky works in a joint practice team with six NPs in a network of 4 rural clinic sites, a hospital, a home health agency, and an advanced school of nursing (*602*). The joint-practice arrangement greatly expands the number of patients the physician can treat directly or indirectly. It is not unusual for one of the satellite clinics to serve as many as 500 patients a month (*602*).

A typical week for the physician involves 300 miles of driving to the hospitals and clinics. Each day begins with patient rounds at the hospital and proceeds with services at one of the clinics. On Friday, the physician sees patients at the two busiest clinics, and then spends the afternoon at the home health agency or in administrative meetings. The physician is also responsible for making home visits to assess the condition and needs of patients whose care is then assumed by home health nurses (*602*). This unique and largely successful team approach is hampered by some regulatory obstacles. For example, due to Kentucky laws that prohibit NPs from prescribing medication, they must contact the physician by telephone whenever such medications are needed.

Allied Health Professionals

A study of AHP supply and recruitment in Florida's small rural hospitals (*572*) found that, compared with urban hospitals, rural hospitals were paying higher salaries to laboratory and radiographic personnel and higher entry-level salaries to nuclear medicine technologists and respiratory therapists. Although most rural hospital AHPs were local residents, a substantial proportion of laboratory and radiologic personnel commuted from urban areas. More importantly, rural hospitals recruited most of their new AHP staff from urban areas. Consequently, to compete with urban facilities for qualified personnel, small rural hospitals had increased salaries and benefits, instituted scholarship programs, improved management training, hired national recruiting firms, and established committees to address employees' concerns (*572*).

Community and Migrant Health Centers

Approximately 800 NHSC physicians will complete their obligations at C/MHCs in 1990-91, but due to a decline in obligated NHSC scholarship recipients, fewer than 250 replacements will be available (*414*). Physician shortages may be particularly severe in smaller rural C/MHCs that are more sensitive to the loss of a single physician and have greater difficulty finding a replacement (*414*).

To stem the projected physician shortfall, C/MHCs must either retain NHSC physicians past the term of their obligations, or they must successfully recruit non-NHSC physicians. The average salary of C/MHC primary care physicians is considerably lower than what those physicians would make in the private sector (*411*), and financial constraints limit the ability of C/MHCs to compete with the private sector for the physicians they need.

A 1987 study comparing recruitment and retention strategies used in health maintenance organizations (HMOs) and C/MHCs found that C/MHCs lagged well behind HMOs in the breadth and extent of their activities (*411*). Only 48 percent of the compensation components (e.g., pensions, association membership, cost of living increases, loan repayment) and only 19 percent of the incentive provisions (e.g., extra compensation for weekend work, teaching) used by HMOs were used by C/MHCs (*411*). Many HMOs use productivity-based incentives to attract and retain staff, but the Department of Health and Human Services has reportedly discouraged C/MHCs from this practice (*411*). C/MHCs that do employ such strategies, however, have found them to be very effective (*411*). For example, the Southern Ohio Health Services Network, a private, nonprofit organization providing health services in 14 rural Appalachian communities, modified its physician compensation plan by linking annual salary increases to quality and productivity (*725*). The development of this plan was viewed as a significant factor in the retention of 70 percent of the Network's NHSC physicians after their obligations had been completed (*725*). HMOs also use loan repayment plans to recruit and retain physicians, but C/MHCs cannot use their Federal grant funds for such purposes (*411*).

C/MHCs do engage in preceptorship programs to a greater extent than HMOs and have found that they aid in staff retention (*411*). Preceptorship programs not only give C/MHC physicians the opportunity to teach but also help link C/MHCs to the academic resources of educational institutions. In addition, these programs provide the centers an opportunity to recruit participating students (*411*).

In fiscal year 1989, the Bureau of Health Care Delivery and Assistance (BHCDA) awarded approximately $22 million in grants to C/MHCs to improve personnel recruitment and retention (*662*). It is too early to evaluate the effectiveness of this initiative on the retention of NHSC physicians in or the recruitment of new personnel to C/MHCs.

STATE EFFORTS IN HEALTH PERSONNEL DISTRIBUTION

Where Federal and local efforts are unsuccessful in overcoming shortages of health personnel, States may step in. In fact, in an OTA survey of State rural health activities conducted in 1988, States most frequently ranked personnel issues as the greatest problem for the health of their rural populations (see ch. 4). Although respondents noted that provider recruitment and placement activities had addressed some needs, many felt further program development was warranted.

Table 13-11 shows how State officials rate certain Federal programs for improving the availability of health services to nonmetro HMSAs and Medically Underserved Areas.[46] The programs most frequently listed as effective were the NHSC (35 States), C/MHCs (33 States), the Rural Health Clinics Act (21 States), and AHEC activities (15 States). Ironically, the program most frequently listed as ineffective was also the Rural Health Clinics Act (10 States); it was followed by Medicare Physician Bonus Payments (9 States) and AHEC activities (9 States).[47] Responding officials in a number of States were not familiar with Federal support of primary care education programs, loan repayment programs, or the Medicare physician payment bonus.

State Activities

The number of health personnel distribution activities varies considerably from State to State (table 13-12) (*685*). Programs most commonly used in States to improve the geographic distribution of health professionals are placement services (43 States), service-contingent loans and scholarships (36 States), service-contingent educational loan repayment programs (27 States), targeted primary care training opportunities (28 States), preceptor-

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[46] These data are from OTA's 1989 Survey of State Health Personnel and Medically Underserved Area Designations. See app. D for a copy of the survey instrument and a description of survey methods.

[47] Of the nine States listing AHECs as "ineffective," five did not have an AHEC, one had just started an AHEC in 1988, and three did have AHECs.

Table 13-11—States Officials' Ratings of the Effectiveness of Selected Federal Programs in Improving the Availability of Health Services in Nonmetropolitan Health Personnel Shortage and Medically Underserved Areas[a]

Federal program	Number and percent of States rating the program as:						
	VE	E	I	VI	NF	DK/NO	NR
National Health Service Corps...	14(32%)	21(48%)	6(14%)	0 (0%)	0 (0%)	2 (5%)	1 (2%)
Support of primary care educational programs..........	2 (5%)	9(20%)	6(14%)	1 (2%)	5(11%)	16(36%)	5(11%)
Area Health Education Center (AHEC) activities......	3 (7%)	12(27%)	5(11%)	3 (7%)	1 (2%)	14(32%)	6(14%)
Community health centers........	21(48%)	12(27%)	2 (5%)	1 (2%)	2 (5%)	4 (9%)	2 (5%)
Rural Health Clinics Act........	5(11%)	16(36%)	8(18%)	2 (5%)	2 (5%)	8(18%)	3 (7%)
Medicare physician bonus payments................	4 (9%)	5(11%)	5(11%)	4 (9%)	3 (7%)	19(43%)	4 (9%)
Other[b].........................	3 (7%)	1 (2%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	40(91%)

NOTE: VE = very effective; E = effective; I = ineffective; VI = very ineffective; NF = not familiar with Federal program; DK/NO = don't know or no opinion; NR = no response. Data from OTA's 1989 survey of States on health personnel shortage and medically underserved area designation (see app. D).

[a] Only 45 States responded to the survey.

[b] Other Federal programs specified included Cooperative Agreement Fund and Rural Primary Health Care Initiative. Two States specified State Programs: State physician training programs and State loan repayment programs.

SOURCE: Office of Technology Assessment, 1990.

ships (24 States), and AHECs (25 States) (table 13-12).[48] Other methods include malpractice insurance subsidies, bonuses to physicians in rural shortage areas, and recruitment travel assistance (*627*). Physicians made up the bulk of providers actually recruited by respondents to OTA's survey, but recruitment efforts were reported for a wide range of health professionals. Many States tried unsuccessfully to recruit NPs and PAs (see ch. 4, table 4-6).

To target resources to areas of greatest need, States may identify areas of health personnel shortage or medical underservice. While some States have developed their own shortage area designation criteria, many States lack the resources or the foresight to implement a designation program and rely on Federal designations to identify areas and populations of need. Three-fourths of States (34 of 45) responding to a second OTA survey on shortage area designation activity[49] used some type of shortage area designation (either Federal or State), to target their placement activities[50] and 21 of these were using their own designations to implement the programs (see ch. 11).

A 1986 BHPr study found that in only one-half of the States was a State's level of effort in health professions distribution (as measured by number of programs, number of program participants, and program funding) related to the size of its underserved and rural populations (table 13-13) (*685*). State budget constraints, political climate, and number of slots in health professions training programs also can affect a State's level of effort (*685*). The same study found that financial support for non-Federal health professions distribution programs increased substantially from 1980 to 1985 (figure 13-2) (*685*). In nominal dollars, total support increased by 75 percent during this time (from $42 million in 1980 to $73 million).

Characteristics of Program Success

The 1986 BHPr study identified 113 health professions distribution programs in 42 States (figure 13-3) (*685*).[51] In general, integrated strategies

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[48] Numbers of States reflect responses to three separate studies carried out between 1986 and 1989 (see table 13-12). Some programs may have been discontinued, and programs in some States may not be reflected.

[49] See app. D.

[50] Ten respondents indicated that their States did not have any health personnel distribution programs using shortage area designations; and 1 respondent answered "don't know."

[51] These programs are also reflected in table 13-12.

Table 13-12—State Health Professions Distribution Programs[a]

		Educational programs				Financial incentives during training				Aid in practice						Other
	Targeted primary care training opportunities (e.g., residencies)	Seat purchases	Preceptorships	Area Health Education Centers	Other curriculum changes or educational programs	Service-contingent loans and scholarships	Other loans	Other scholarships	Other financial incentives	Placement	Guaranteed income	Loans	Service-contingent educational loan repayment	Malpractice insurance subsidy	Other aid in practice	Other programs
Alabama				O		X O ▲	O									
Alaska		X				X										
Arizona			O	O		X O				O ▲				O		
Arkansas	O		O	X O		X O ▲				X O ▲		X O	▲		O	O
California	X					▲				▲		X	▲			
Colorado										▲						
Connecticut																
Delaware						▲				▲			▲			
Florida	X		O	O	O				O	X O ▲			O ▲			
Georgia	X					X O				X						
Hawaii																
Idaho	O	X		O		O ▲										
Illinois	X O					X O ▲	O			O			▲			
Indiana						▲				▲			▲		O	
Iowa	X					O ▲				▲			▲			
Kansas	X		X O	X		X O ▲				X ▲			▲			
Kentucky	X O	O	O	X O	X	X O ▲				O ▲		O	▲			
Louisiana										▲						
Maine	O	X O	O	X O		X O	O	X		O ▲			▲			
Maryland	O	O	O	O		X O ▲	X			▲			O ▲			
Massachusetts	X	X		X		X				X						
Michigan	X		X O	O						X						
Minnesota			X			O ▲				▲			▲			
Mississippi	O		O			X O				O ▲	O	O	O			
Missouri	O			O		X O				▲			O ▲	O		
Montana		X														
Nebraska	O		O			X O ▲				O ▲	O	O		O		
Nevada	O					O				▲	X					
New Hampshire																
New Jersey	X O		X O	O	O	O ▲				▲			▲			
New Mexico	O	O	X O	O	X	X O				X O ▲		X	O ▲			O
New York	X O	X	X	O	X	X O ▲				O ▲			O ▲			
North Carolina	O		O	X O		X O ▲				X O ▲			O ▲	O		
North Dakota										X ▲						
Ohio	O		X O	O		O				▲						
Oklahoma	X O		O	X O		X O ▲				X O ▲			▲			
Oregon	X		O			X O				X ▲			O			O
Pennsylvania			X		X		X			▲						
Rhode Island		X								▲						
South Carolina	O			X O		X O ▲				X O ▲		O				
South Dakota				O			O			O					O	
Tennessee			X	X						O ▲		O	O ▲			
Texas	X O		O	O		X	X			▲			O ▲			
Utah			O			O				X ▲			O			
Vermont						▲				▲			▲			
Virginia				X		X O ▲		O		X						
Washington	X O	X O	O	O		X O ▲				▲			O ▲	O		O
West Virginia	O		O	X O		X ▲				O ▲			O ▲			
Wisconsin										X ▲						
Wyoming						X ▲				▲			▲			
Total X	15	8	9	11	4	25	3	1	0	15	1	3	0	0	0	0
Total O	20	5	20	21	2	27	4	1	1	16	2	6	13	5	3	4
Total ▲	0	0	0	0	0	23	0	0	0	37	0	0	24	0	0	0
Total overall	28	11	24	25	6	36	7	2	1	43	3	8	27	5	3	4

[a] Data are based on three separate surveys conducted in 1986, 1988, and 1989 (see legend below). Activities captured by one survey may not have been captured by another for various reasons. Not all surveys included the same activity categories or grouped them in a similar fashion. Also, the 1986 Bureau of Health Professions survey contacted health professions distribution programs directly, while the two Office of Technology Assessment surveys (1988 and 1989) contacted State officials. All States responded to the 1988 Office of Technology Assessment Survey, but only 45 States responded to the 1989 survey (see app. D). Finally, some programs may have been established or discontinued between 1986 and 1989.

LEGEND:

"X" = Data from: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Office of Data Analysis and Management, *Compendium of State Health Professions Distribution Programs: 1986*, DHHS Pub. No. HRP-0906964 (Rockville, MD: HRSA, November 1986).

"O" = Data from: Office of Technology Assessment, 1989 Survey of States on Health Personnel Shortage and Medically Underserved Areas (see app. D).

"▲" = Data from: Office of Technology Assessment, 1988 Survey of State Rural Health Activities (see app. D).

SOURCE: Office of Technology Assessment, 1990.

Table 13-13—States' Level of Effort in Health Professions Distribution Compared With Their Unserved and Nonurban Populations

State	Level of effort[a]	Unserved population (in thousands)[b]	Percent nonurban population[c]
Alabama	4	362	40
Alaska	3	74	36
Arizona	2	135	16
Arkansas	3	177	48
California	2	751	9
Colorado	4	66	19
Connecticut	4	70	21
Delaware	4	18	29
District of Columbia	4	65	0
Florida	1	608	16
Georgia	1	592	36
Hawaii	4	18	14
Idaho	2	128	46
Illinois	3	909	17
Indiana	4	210	36
Iowa	3	78	41
Kansas	1	33	33
Kentucky	1	247	49
Louisiana	4	551	31
Maine	2	218	16
Maryland	2	177	20
Massachussets	2	49	53
Michigan	3	353	29
Minnesota	4	73	33
Mississippi	4	395	53
Missouri	4	444	32
Montana	2	70	47
Nebraska	4	60	37
Nevada	4	76	15
New Hampshire	4	24	48
New Jersey	4	187	15
New Mexico	3	230	28
New York	1	562	19
North Carolina	1	461	52
North Dakota	3	68	51
Ohio	3	554	27
Oklahoma	1	111	33
Oregon	3	164	32
Pennsylvania	3	558	31
Rhode Island	3	31	13
South Carolina	2	253	46
South Dakota	4	84	53
Tennessee	3	291	40
Texas	1	864	20
Utah	4	61	16
Vermont	4	31	66
Virginia	2	283	34
Washington	1	126	27
West Virginia	4	282	64
Wisconsin	4	273	36
Wyoming	2	38	37

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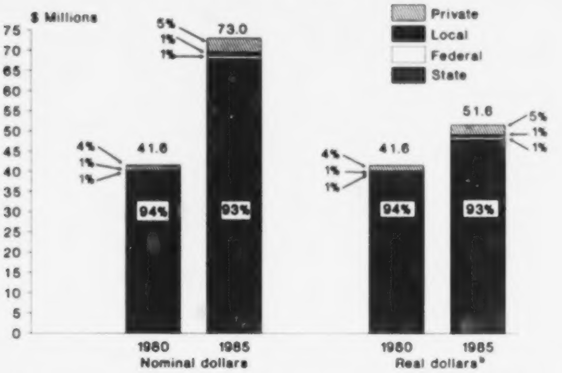
[a] Level of effort is derived from a combination of three variables: (1) number of programs, (2) funding, and (3) number of participants in the programs. "1" indicates the highest level of effort, while "4" indicates the lowest level of effort.

[b] The estimated unserved population is computed by multiplying the number of practitioners in designated Health Manpower Shortage Areas by the population-to-practitioner cutoff ratio of 3,500:1 (in special cases, 3,000:1) and subtracting the figure from the area population.

[c] Percent of State population residing in nonurban areas, 1980 census.

SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Office of Data Analysis and Management, Compendium of State Health Professions Distribution Programs, 1986, DHHS Pub. No. ODAM-2-87 (Washington, DC: U.S. Government Printing Office, 1986), table 4.

Figure 13-2—Funding Levels and Source of Funding for State Health Professions Distribution Programs, 1980 and 1985[a]



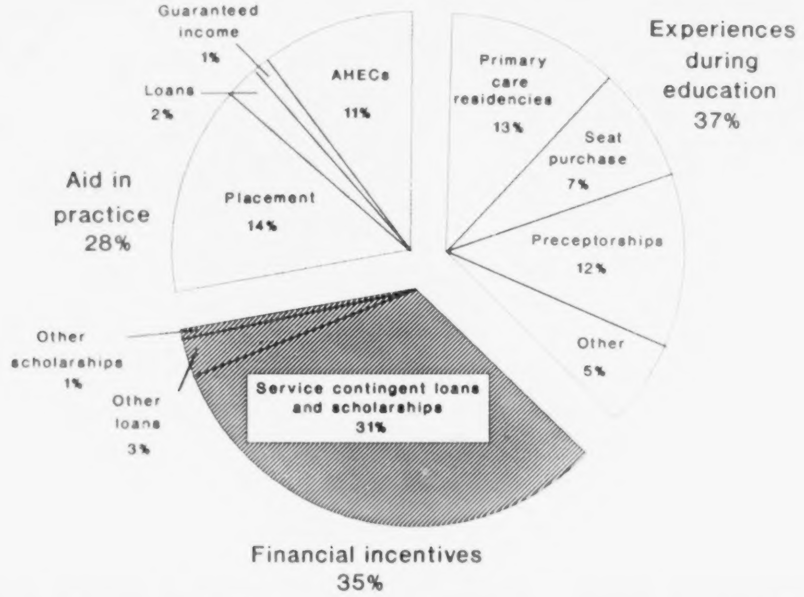
[a] 68 programs reported funding levels and sources in 1980 and 1985.
[b] Adjusted for inflation.

SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Office of Data Analysis, and Management, *Compendium of State Health Professions Distribution Programs: 1986*, DHHS Pub. No. HRP-0906964 (Rockville, MD: HRSA, November 1986).

using a number of different incentives were found to be more successful than programs using only a single strategy to increase the presence of health professionals in underserved communities. Combining educational and financial practice incentives with selective recruitment of students and practice site development were found to reinforce health professionals' choices of specialty and practice location both during their education and throughout their career. As of 1986, however, many States were still pinning their hopes and funding on separate, single strategies (*685*).

Of the 39 financial incentive programs identified in the BHPr study, 35 required service in designated shortage areas (*685*). In general, service-contingent programs were found to be an expensive but successful means of attracting providers to rural and underserved areas. The programs with strict buyout provisions (e.g., high interest rates or other penalties) had the greatest success in getting students to fulfill their service obligations. Selective recruitment of students predisposed to rural practice (e.g.,

Figure 13-3—Focus of 112 State Health Professions Distribution Programs Identified by the Bureau of Health Professions, 1986



SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Office of Data Analysis and Management, *Compendium of State Health Professions Distribution Programs: 1986*, DHHS Pub. No. HRP-0906964 (Rockville, MD: HRSA, November 1986).

students who grew up in rural areas) also improved the success of service-contingent programs (*685*).

During the past 2 years, a number of States have passed legislation creating or expanding service-contingent scholarship, loan repayment, or tuition reimbursement programs for health professionals in rural and underserved areas (*118,196,197,208,283, 301,311,358,364,365,366,371,393,434,435,454,568, 596,598,703,722*). Oregon recently passed a law requiring the Oregon Health Sciences University to selectively recruit medical students predisposed to rural practice (*454*). Scholarships or loan repayment for underrepresented minorities have been approved recently in Louisiana (*357*) and California (*118*).

Programs to provide assistance to practitioners establishing or maintaining practices in underserved communities are also common (table 13-12) (*685*). The BHPr study found that the effectiveness of these programs depended on the level of ongoing support once a practitioner had been placed (*685*). Programs providing financial assistance for establishing a practice as well as technical assistance in managing and maintaining it had greater success in retaining personnel in underserved areas than programs that simply acted as a placement service (*685*). Recent State activities include 1989 Oregon legislation establishing tax credits for physicians practicing in certain rural areas (*454*) and legislation in North Carolina and Arizona authorizing compensation or malpractice insurance subsidies for physicians providing prenatal and obstetric care in rural and underserved areas (*53,444*).

Many States use educational strategies to address rural health personnel needs. Thirty-nine States have public medical schools, many of which were designed to produce more primary care physicians for the State and to increase educational opportunities in certain areas (*685*). Graduates of public medical schools are more likely to choose primary care and practice in underserved areas than graduates of private schools (*168,455*). The BHPr study found that 8 States without their own public medical schools purchased seats in other State schools. Of these, programs with a service commitment produced proportionately more students who returned to their home States (*685*).

Some schools offer more specialized distributional programs. Eleven States in the BHPr study had developed programs with targeted primary care training opportunities in rural and underserved areas (*685*). Most of these programs reported that the majority of their graduates remained in the State to practice. Eighteen programs in 10 States provided special educational experiences (mostly rural preceptorships) to undergraduate medical students (*685*). Recently, Texas, Nevada, and Hawaii have passed legislation authorizing the planning or establishment of rural-oriented health professions training programs (*240,434,597*). Maine and Florida have passed legislation to establish special allied health training programs (*198,365*). Other curricular innovations include enrichment programs to increase the number of students from minority and rural backgrounds, and the various activities of AHECs (*685*).[52] For example, 1989 Oregon legislation mandated that the State AHEC provide continuing education for rural physicians (*454*).

SUMMARY OF FINDINGS

General Strategies for Rural Recruitment and Retention

Exposure to rural practice during health professions training can influence location decisions as well as better prepare health professionals for the realities of rural practice. Decentralized educational programs that offer training opportunities at rural sites are not only beneficial to the students, but they may contribute to retention of providers already in the area. These programs have demonstrated success in placing their graduates in rural and underserved areas. Selective recruitment of students from rural areas has also been found to increase the proportion of graduates who locate in rural areas.

Cross-training programs may improve the ability of rural facilities to hire certain allied health professionals as well as improve the attractiveness of rural practice for these personnel. Training could be provided in a formal educational setting or on the job. State licensing laws and hospital staffing requirements that present barriers to the training and use of multicompetent allied health personnel will have to be made more flexible before such strategies can be adopted.

The Federal Government, through Medicare, subsidizes GME. ***Medicare funding of GME does not***

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[52] The 12 AHECs in the BHPr study were originally federally funded, but now operate mostly on State funding.

distinguish among medical specialties on the basis of undersupply, oversupply, or other indicators. If anything, Medicare reimbursement of GME puts primary care training at a relative disadvantage, especially when the education takes place in ambulatory care settings.

The Federal Government also provides some targeted funding to primary care health professions education programs. ***With the exception of certain nurse and advanced nurse training programs, however, such funding has decreased considerably during the past decade.*** Since 1980, targeted funding of primary care graduate and undergraduate medical education has decreased by more than 25 percent. Federal support of PA training programs is approximately one-half of what it was in 1981. A scholarship program for NPs and nurse-midwives who agreed to serve in HMSAs was discontinued in 1982. Federal support for allied health education peaked at $30 million in 1974, but in 1990 only $726,000 were appropriated for allied health grants and contracts.

AHECs are a source of innovative programs in rural-oriented health professions education, and they have been successful in recruiting and retaining health personnel in rural areas. AHECs have tended to emphasize physician rather than nonphysician training. The unique funding mechanism of AHECs make them a model for Federal-State cooperation in health professions training and distribution efforts. Some AHECs have come to play a central coordination and research role for rural health in their home States.

Medicare Reimbursement Strategies

The implementation of RBRVS for physician payments under Medicare will probably enhance the incomes of most rural physicians. The full impact of the new payment system will not be felt for several years, and it is not yet possible to predict its impact on rural physician supply.

The impact of the Medicare Physician Bonus Payment Program, recently expanded to provide a 10 percent bonus on Medicare payments for all physician services provided in all rural primary care HMSAs, is also unknown. Current reporting requirements are too minimal to enable an evaluation of the program's impact. A 10 percent bonus on Medicare payment may be a sufficient incentive for physicians to stay in HMSAs, but it is not likely to be sufficient to attract new physicians to HMSAs. Furthermore, the effectiveness of the program may be reduced by the instability of the HMSA designation. Small changes in the number of practitioners in a HMSA can result in existing physicians in that HMSA becoming ineligible for the bonus.

Telecommunications networks can be used to alleviate professional isolation for rural practitioners, providing them with consultative opportunities as well as continuing education. *Locum tenens* services that provide temporary replacements for health professionals in remote rural areas can help to alleviate concerns over lack of vacation and professional leave time.

Strategies for Acute and Chronic Shortage Areas

Service-contingent scholarship programs and loan repayment programs have helped recruit health professionals to shortage areas and have been used by a number of States as well as the Federal Government. The most effective programs have been those that provide ongoing support to participants during their service obligation. ***Satellite clinic networks that use MLPs can also improve the availability of health services in remote areas.*** In some States, however, practice acts and reimbursement restrictions prevent the use of MLPs in autonomous settings.

Funding for the NHSC, which has placed more than 16,500 health professionals in underserved areas since its inception in 1971, has decreased dramatically in recent years. This decrease will mean a drastic reduction in the number of NHSC field staff available for placement in a relatively stable number of designated shortage areas.

- ***The NHSC Scholarship Program, which has been almost entirely defunded, was highly successful in placing personnel in shortage areas.*** The Scholarship Program may be a particularly appropriate incentive for health professionals who would not be candidates for loan repayment due to lower levels of educational debt (e.g., MLPs, nurses). The scholarship program also provides valuable opportunities for students who are economically disadvantaged. Targeting scholarship funds to MLPs rather than to physicians might increase the total number of scholarships awarded without increasing overall expenditures.

- The NHSC Federal Loan Repayment Program has placed mostly physicians; probably due to poor information dissemination, it was unsuccessful in attracting many MLPs.
- The NHSC State Loan Repayment Program has not been adequately tested. Only seven States have been awarded funds, and they had insufficient time in 1988 to award contracts.
- The NHSC Volunteer Recruitment Program, which began in 1988, has had notable success in placing physicians and other health personnel in lower priority HMSAs, but it might have a greater impact if additional incentives were available to providers to locate in these areas and if additional recruitment staff were available.

In 1988 and 1989, the 750 physicians recruited through the NHSC Federal Loan Repayment and Volunteer Programs represented only 18 percent of the estimated number of physicians (4,104) needed to remove all primary care HMSA designations in 1988. The Scholarship Program will place only 74 practitioners (including nonphysicians) in 1991. Reductions in the number of NHSC commissioned officers and NHSC-salaried civilian field staff also seriously limit the ability of the NHSC to place personnel in areas of the most critical need. Many NHSC sites—particularly federally funded C/MHCs—are faced with the impending loss of obligated NHSC physicians for whom there will be no replacements.

Private Sector Strategies

Rural hospitals may use financial incentives to attract physicians to the area. Such incentives include guaranteed income, free office space, and loans; but the current vagueness of Medicare's antikickback provisions can make these strategies dangerous for hospitals. Faced with the threat of future nurse shortages, hospitals are also focusing on nurse retention issues. For rural areas, key issues for hospital nurse recruitment and retention include access to continuing education and opportunities for career advancement.

Federally funded C/MHCs, faced with the impending loss of 800 NHSC physicians in 1990, are adopting new strategies to recruit and retain medical and other staff. To date, however, many of these strategies (e.g., linking salaries to productivity) have been limited by financial and administrative constraints. It is too early to evaluate the impact of Federal grant funds made available to C/MHCs in fiscal year 1989 for recruitment and retention activities.

State Activities

States responding to an OTA survey ranked personnel issues as the most pressing rural health problem. Thirty-eight of 50 States responding to the survey were involved in personnel recruitment activities, most of which were directed at physician recruitment. Several States reported unsuccessful attempts to recruit NPs and PAs.

States use a wide range of recruitment methods, including service-contingent loan forgiveness and scholarship programs, other financial incentives, rural-oriented health professions education, selective recruitment of students, technical assistance in practice development and maintenance, and placement services. ***The most effective State programs are those that employ multiple strategies***—e.g., a scholarship or loan repayment program which both places personnel in needy areas and provides them with ongoing financial or technical support. Service-contingent programs with high buyout penalties seem to be effective for temporary recruitment of health personnel to shortage areas, but retention of these personnel may require additional commitment of resources. Cooperation among existing programs is key to program success.

State level of effort in rural health personnel recruitment and retention varies widely and does not correlate with measures of ruralness or measures of need. State activity in and contributions to health professions distribution programs have increased significantly during the last decade, but many States still rely heavily on Federal dollars to fund these efforts. When asked what Federal programs had been effective in improving health services availability in rural shortage areas, State officials most frequently mentioned the NHSC, C/MHCs, the Rural Health Clinics Act, and the AHEC program.

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Chapter 14

Conclusions: The Availability of Health Personnel in Rural Areas

SUPPLY OF HEALTH PERSONNEL

Although the supply of health professionals is relatively lower in rural than in urban areas, it is probably nonetheless adequate in many rural areas. Some rural areas, however, continue to have severe shortages of health professionals, even in the face of recent growth in national supply. Their situation is likely to worsen unless targeted efforts are made to attract health care providers. Other rural areas may also face inadequate supply in the future due to slower growth in national supply and competing demand for primary care providers in urban areas.

Physician supply has increased over time in both urban and rural areas. In fact, during the past decade, the most populated rural (nonmetropolitan) counties experienced even greater growth in physician supply than did urban counties. However, ***rural areas in general still have fewer health professionals per capita than does the Nation as a whole, and the least populated counties have the fewest.*** In 1988, for example, rural counties had fewer than one-half as many patient care MDs per capita as did urban counties, and small rural counties[1] had fewer than one-fourth as many. Between 1979 and 1988, rural counties with fewer than 10,000 residents had a 17 percent increase in the number of patient care physicians per capita, compared with 25 percent in the largest rural counties and 24 percent in the United States as a whole (*686*). Reductions in the number of new National Health Service Corps (NHSC) placements may further slow the diffusion of physicians to less populated rural areas.

Most rural physicians are primary care physicians.[2] Unlike most other specialties, the future supply of primary care physicians is in danger. Projected shortages will disproportionately affect smaller rural areas.

Although the exact number and location of communities with acute or persistent physician shortages are impossible to determine, evidence shows that a substantial number exist:

- In 1988, 111 counties, all of which were rural, had *no* professionally active physician (*511*).
- As of December 1988, over 16 million people (29 percent of the U.S. rural population) were residing in federally designated rural primary care Health Manpower Shortage Areas (HMSAs). In comparison, only 9 percent of urban residents were located in urban primary care HMSAs (*665,686*). If residents of qualifying but undesignated areas were included, the numbers would be even larger. Rural HMSAs are concentrated in the South and in the West North Central and Mountain States.
- Nearly 1,800 primary care providers (physicians or midlevel practitioners) would be needed to eliminate rural primary care provider shortages in designated HMSAs (*665*).
- The number of rural primary care HMSAs has not changed appreciably during the past decade.

Current national shortages of midlevel practitioners (MLPs),[3] registered nurses (RNs), and allied health professionals (AHPs), along with projected national shortages of dentists, will similarly have a disproportionately negative effect on smaller rural communities. The shortage of these personnel, coupled with future declines in primary care physician supply, may have serious implications for the availability of basic health care in some rural communities.

Assessing rural health personnel availability, particularly for nonphysicians, is severely hampered by lack of national data. There are no recent national data available on the rural/urban distribution of AHPs. Data on licensed practical/vocational nurses (LP/VNs) are also old, and national data on nurse vacancies generally are limited to hospital and nursing home settings. Information on the distribution of physician assistants (PAs), certified nurse-midwives (CNMs), and optometrists is only available by community size and does not permit rural/urban distinction. It is therefore impossible to integrate or compare data on the distribution of these professionals with data on physicians. The common belief that PAs are more likely than physicians to locate in rural areas, for example, cannot be confirmed with currently available data.

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[1] Nonmetro counties with fewer than 10,000 residents.

[2] Osteopathic physicians make up a substantial proportion of these primary care physicians, particularly in small rural counties.

[3] Includes nurse practitioners, physician assistants, certified nurse-midwives, and certified registered nurse anesthetists.

IDENTIFYING SHORTAGE AREAS: FEDERAL AND STATE EFFORTS

To target limited resources effectively, Federal and State governments must be able to identify needy areas. Although much progress has been made during the past decade in developing criteria for this purpose, Federal and State governments need to coordinate and expand their efforts in order to identify shortages of a wider range of health professionals in a manner more sensitive to local conditions.

Existing Federal designations can identify shortage areas nationwide according to a single set of basic criteria. However, they have a number of limitations:

- Medically Underserved Area (MUA) designations have not been reviewed since 1981.
- The incentive to apply for designation has probably decreased due to the reduced availability of Federal resources that flow to designated areas and to a lack of State and local resources needed to identify areas. In 1986, for example, there were 95 rural counties *not* designated as HMSAs although they qualified on the basis of whole-county physician-to-population ratios (*511*).[4]
- Federal criteria do not currently take into account measures of health care access such as the level of insurance coverage in the area, which can have a significant impact on the availability of services to the population.
- HMSAs and MUAs are very general measures and cannot adequately identify local shortages of particular providers or specific types of services (e.g., obstetric care).

Even with a more coordinated and active Federal designation program, State involvement will be critical. State criteria and designations are more likely than Federal designations to be sensitive to the needs of specific areas, address specialty shortages, and respond quickly to changes in local conditions.

Programs that use provider-based designations such as the HMSA to target resources should recognize the vulnerability of small rural areas to dedesignation. Small rural areas can lose their designation, and all associated resources, with the gain of even a single physician. One way to ensure that the effects of these programs are long-lasting might be to provide time-limited incentives that are tied only to the initial designation status of the area. Alternatively, designation status might be maintained for a specified "grace period" after changes that would otherwise precipitate dedesignation have occurred.

RECRUITMENT AND RETENTION OF RURAL HEALTH PERSONNEL

The future availability of health personnel in rural areas depends on two factors. First, a sufficient number of health professionals must be appropriately trained to practice in rural areas (e.g., trained as generalists or primary care specialists). Second, rural areas must be able to attract and retain these personnel.

Personal and professional concerns play at least as great a role as financial concerns in the location decisions of health professionals. Educational, financial, and other interventions must therefore work in concert to improve the attractiveness of rural practice. Strategies that have demonstrated effectiveness in improving the recruitment and retention of rural health personnel in the past include:

- rural-oriented health professions training,
- selective recruitment of students with rural backgrounds or with interest in rural practice,
- service-contingent scholarship and loan repayment programs, and
- networks to provide continuing education and professional consultation to health professionals in remote areas.

The Federal role in these strategies can be direct (e.g., placing personnel in underserved areas) or an indirect role of initiation and encouragement (e.g., through support of rural health professions education and State loan repayment or scholarship programs).

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[4] MDs only.

Educational Strategies

Educational strategies can enhance the supply of rural health professionals by overcoming some of the personal and professional barriers to rural practice. These barriers include a lack of opportunities for professional consultation, continuing education, or career advancement. Educational interventions can also help health professionals feel more confident practicing in semi-isolation. The Federal Government can pursue educational strategies by targeting its health education resources to primary care and rural-oriented programs and by supporting rural continuing education efforts.

The supply of rural physicians is greatly dependent on the supply of primary care physicians, but existing trends increasingly result in medical students' seeking other specialties. The current trend away from primary care medical specialties is linked to professional and financial concerns of medical graduates, as well as to reduced availability of residency training slots. Targeted Federal funding for primary care undergraduate and graduate medical training programs can give these programs a greater advantage, but such funding has decreased in recent years. Weighting Medicare funding for graduate medical education would probably have an even greater impact on the redistribution of resources towards primary care specialties, although it would probably encounter some political opposition.

To increase the supply of *rural* primary care physicians, targeted funding could be used to develop and expand rural-oriented training programs, which have been effective in placing their graduates in underserved rural areas. Current Federal funding for primary care medical training supports some rural-oriented training programs, but there is neither a specific set-aside nor a specific set of curricular requirements for these programs. To ensure effectiveness, rural program funding might be tied to specific curricular components and/or to some measure of outcome (e.g., proportion of graduates placed in rural areas).

Educational strategies are also key in the recruitment and retention of many nonphysician health personnel. If more training programs were located in (or provided some training in) rural sites, more rural students could be recruited. If access to advanced nursing education in rural areas were improved, rural practice might be more attractive to nurses, and the supply of advanced practitioners (e.g., NPs, CNMs, and certified registered nurse anesthetists) could increase. These practitioners, along with PAs, are crucial providers in rural areas without enough physicians.

Specific nonphysician programs to target might include:

- programs to upgrade rural LP/VNs to RNs;
- programs through which rural RNs can earn bachelor's degrees;
- programs to train rural RNs as NPs, nurse-midwives, and nurse anesthetists;
- PA training programs;
- rural-oriented dental education programs;
- crosstraining programs for certain AHPs; and
- multidisciplinary training programs with a rural focus.

Federal precedents exist for almost all of these programs, but few of them have a rural set-aside or specific standards for participating rural programs.

Although data are scarce, it appears that shortages of some AHPs are especially critical in rural areas. General rural shortages are compounded by the fact that many rural facilities cannot support specialized AHPs on a full-time basis. The training and use of multiskilled AHPs, however, are hindered by strict licensure requirements, inflexible hospital staffing requirements at both the State and Federal levels, and a lack of formal educational programs. To address these issues, training programs could coordinate with State licensing boards in examining new categories of AHP licensure; Federal and State authorities could examine facility staffing requirements; and Federal or State assistance could be provided to establish local training programs and support traineeships in rural community colleges or hospitals.

Continuing education, which is required for licensure of many health professionals, is particularly difficult to obtain in rural areas, either due to unavailability of accredited programs or the inability of rural practitioners to find temporary replacements while they attend programs. The Federal Area Health Education Centers (AHEC) Program provides a mechanism for addressing continuing education needs in rural areas, but its influence is not universal. Telecommunications can also be used to provide continuing education, but programs are expensive to develop and do not exist for many types of health professionals.

Improved telecommunications networks can reduce professional isolation, improve quality of care, and improve personnel recruitment and retention by linking providers in remote areas to educational and consultative resources. A number of model networks are already in place. The equipment and training costs of starting such networks can prohibit their development and successful implementation, however, and support may be needed to extend the benefits of telecommunications to practices and facilities that lack them.

AHECs provide both rural-oriented clinical education experiences and continuing education for a variety of health professional trainees. The AHEC program is an excellent example of how Federal support can encourage State and local participation in activities addressing the geographic maldistribution of all varieties of health professionals. Existing AHECs might be used as coordination points for other Federal health professions distribution programs operating within or near their service areas (e.g., the NHSC and federally supported rural-oriented health professions training programs).

Financial and Professional Strategies

Health professions students may be dissuaded from primary care specialties by high levels of indebtedness, perceived higher incomes in the non-primary care specialties, and other concerns. In addition, the high costs of education and reduced availability of scholarship aid may prevent economically disadvantaged rural students from pursuing health careers and returning to practice in rural areas.

Strong financial incentives may be needed to attract new physicians and other health professionals to underserved rural areas. Remote communities will have increasing difficulty finding young physicians who are willing and financially able to establish a private practice. Programs that help students offset the high costs of education by direct financing (e.g., scholarship programs) or by absorbing accrued debt (loan repayment programs) would help to alleviate these problems. Such programs could be tied to a service obligation and/or to participation in rural-oriented training programs. The Federal Government has a history of involvement in such programs, but its financial support has decreased considerably during the past decade.

Time-limited tax incentives, lump-sum bonuses, or other aid in practice for physicians, MLPs, and nurses in rural shortage areas may also help to offset education and practice expenses and income disincentives. Such incentives could be tied to a limited service obligation and could be recaptured if the individual were to leave the area before the end of his or her obligation.

The financial disadvantages of rural practice for physicians include fewer opportunities for salaried practice and perceived lower practice income. Rural practitioners may face additional expenses such as travel to service sites and to required continuing education programs. Also, since a higher proportion of rural than urban residents lack health insurance, private physicians in rural practice may handle higher volumes of uncompensated care.

Some Federal policies that address these financial disincentives are already in place. For example, Medicare's newly adopted method of paying physicians, the resource-based relative value scale, will probably increase primary care physicians' incomes, although its ultimate effect on rural physician supply remains uncertain.

Medicare bonuses for physician services delivered in rural primary care HMSAs can also ease the financial burden of rural practice for some physicians, but again, the actual impact of this program on rural physician availability is unknown. To improve the program's accountability and the ability to evaluate its effectiveness, reporting requirements and program evaluation could be made more rigorous (e.g., include evaluation of the characteristics of physicians who are availing themselves of the bonus). The effect of Medicare's bonus payments might be further improved if States provided similar bonuses under Medicaid, expanding both the strength of the incentive and the number of physicians it reaches.

MLPs are well-suited for practice in low-density and underserved areas. The apparent recent trend among some MLPs toward urban practice is unfortunate for rural areas, particularly for those that may not be able to attract and support the services of physicians. ***Rural areas would probably be more attractive to MLPs if existing barriers to autono-***

mous practice were addressed. Such barriers include:

- limited opportunities for Medicare, Medicaid, and other third-party reimbursement;
- State restrictions on scope of practice and professional autonomy, especially for PAs;
- lack of access to continuing education in rural areas;
- malpractice liability insurance costs; and
- lack of acceptance by the medical profession.

Improved Medicare and Medicaid reimbursement for MLPs could increase the number willing and able to practice in remote settings. The Rural Health Clinics Act (Public Law 95-210), which promotes the use of MLPs by guaranteeing indirect Medicare and Medicaid reimbursement for their services, has not been implemented in many areas due to regulatory barriers, resistance from the medical profession, or simply through lack of interest or awareness of eligibility criteria.

Reimbursement policy needs to be carefully coordinated with State practice acts to allow for professional autonomy while maintaining quality and effectiveness through an adequate level of physician oversight. State regulatory changes could be guided by State or Federal models, and they could be influenced through Federal Medicaid policy.

Strategies for Acute and Chronic Shortage Areas

Even with an adequate supply of health professionals, many communities will continue to have great difficulty recruiting providers, either because they lack a sufficient population base to support a practice or because they are otherwise perceived to be unattractive locations. Such areas are unlikely to be able to maintain adequate health care access without some degree of State or Federal intervention.

The cornerstone of Federal efforts to address chronic health personnel shortages has been the NHSC. The NHSC has tremendous potential for improving the short-term and long-term supply of providers in such areas, but its effectiveness is presently limited by funding constraints. In December 1988 an estimated 4,104 primary care providers were needed to remove HMSA designations, 1,794 of these in rural areas. In 1988-89, however, the NHSC placed 750 volunteer or loan repayment physicians in HMSAs—only 18 percent of physicians needed to remove those shortages.[5] The number of obligated scholars continues to wane; only 74 will be available for placement in 1991. Although MLPs at one time represented a substantial proportion of NHSC field staff, the NHSC has placed very few in recent years.

All elements of the program—scholarship, loan repayment, and volunteer—are needed to maximize the program's effectiveness. Loan repayment can attract health professionals with high debt loads (e.g., physicians and dentists) and can draw them to shortage areas immediately. Scholarships may be more effective for recruiting health professionals who spend less time in training and have lower debt loads. Scholarship programs also provide opportunities to students who would otherwise be unable to finance their education. To improve the retention of NHSC personnel, scholarships and loan repayment could be targeted to students in rural and primary care-oriented training programs and to students from rural and underserved areas. The volunteer program could be more effective if it offered additional incentives to providers locating in HMSAs, and if additional recruitment staff were available in the Federal and regional offices.

Many States are heavily involved in health professions recruitment. Because their efforts are more localized than federally administered programs, State loan repayment and scholarship programs might often be more effective in recruiting and retaining rural health professionals. They may also be in a better position to coordinate efforts from various entities in the State to provide ongoing support for personnel serving in shortage areas. The NHSC State Loan Repayment Program might enhance these efforts; however, this fledgling program has not been given an adequate trial and has not been able to demonstrate its full potential. In addition, under its current structure, this program limits the types of personnel States can recruit to those with high debt loads (e.g., certain physicians). If funds could also be used for scholarships, States could recruit a wider range of health professionals. The Federal components of the NHSC are important for placing personnel in areas not reached by State efforts.

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[5] The proportion who were placed in nonmetro HMSAs is unknown.

In addition to the NHSC, the Federal Government could enhance personnel availability in rural areas of chronic shortage through policies that promote satellite clinics, particularly those staffed by MLPs, in these areas. Such policies might include promoting Medicare certification of rural health clinics and encouraging States to overcome barriers to MLP practice.

Part V

Two Examples of Specific Services

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Maternal and Infant Health Services in Rural Areas

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Chapter 15

Maternal and Infant Health Services in Rural Areas

INTRODUCTION

Nearly a million babies are born each year[1] in rural America. Maternity care for women and newborn care for infants are basic components of the health care system and, like emergency services, are considered essential to a community's public health (*207*). Yet there is evidence that many rural communities have lost or are losing the capacity to provide these basic services to their residents (*525*). Providing maternal and infant services in rural areas can be difficult, particularly in areas of very sparse populations, because specialized providers and technologies may be required. Further, transportation systems must be available when obstetric emergencies occur that require the advanced systems of care usually found in urban areas.

This chapter reviews the status of rural maternal and infant health, evidence of problems in access to and availability of obstetric services and providers, and Federal interventions that affect access to maternal and infant care. Lastly, the chapter describes selected maternal and infant care programs that have been effective in improving access to care in rural areas.

MATERNAL AND INFANT HEALTH INDICATORS: URBAN AND RURAL DIFFERENCES

Infant and Fetal Mortality

In 1987, infant mortality[2] was 2 percent higher in rural than in urban areas (10.07 *v.* 9.88 deaths per 1,000 births) (table 15-1).[3] In 1985-86, Wyoming, Idaho, and Maryland were among the States with high white infant mortality in rural areas (11.3, 10.8, and 10.8 per 1,000 births), and Georgia and South Carolina were among the States with high black infant mortality in rural areas (19.9 and 19.6 per 1,000 births) (table 15-2). Causes of infant death vary somewhat by urban and rural residence. In 1987, infant death rates[4] attributable to conditions originating in the perinatal period, such as respiratory distress syndrome, were somewhat lower, but deaths caused by congenital anomalies, sudden infant death syndrome (SIDS), accidents, and pneumonia were somewhat higher in rural than in urban areas (table 15-1).

In 1987, infant mortality rates were 2 percent higher for whites but 8 percent lower for blacks in rural than in urban areas (table 15-3). Neonatal deaths—those occurring in early infancy, before the 28th day of life—occur at about the same rate for urban and rural whites, but the rate for blacks is 10 percent lower in rural than in urban areas. Postneonatal deaths—those occurring in later infancy, from 28 days to age one—are 10 percent higher for whites but 3 percent lower for blacks in rural than in urban areas (table 15-3).[5] The lower neonatal death rate in rural areas is offset by higher fetal mortality. Fetal mortality ratios[6] were 6 percent higher among whites and 14 percent higher among blacks in rural than in urban areas (table 15-3).[7]

The apparently higher incidence of fetal deaths in rural areas could be one cause of relatively low rural neonatal death rates. It may be that babies who would die at or before birth (and would be reported as fetal deaths) in rural areas would be successfully resuscitated and live for short periods of time in urban areas. When fetal and neonatal deaths are combined (perinatal deaths), rural perinatal mortality ratios are 2 and 3 percent higher than urban ratios for blacks and whites, respectively. Interpreting the differences in urban and rural fetal mortality is

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[1] In 1987, 22 percent of babies (839,335 of 3,809,394) were born to rural (nonmetropolitan) residents (*650*).

[2] Infant mortality, as measured by the infant mortality rate, is the annual number of deaths of infants less than 1 year of age, divided by the annual number of live births (*15*).

[3] Infant mortality rates were standardized for race (white, black, other race) using methods described by Das Gupta (*159*).

[4] Cause-specific infant death rates were adjusted to account for differences in the distribution of racial groups in urban and rural areas (*159*).

[5] Neonatal mortality accounts for 65 percent of all infant deaths. The leading causes of neonatal mortality are low birthweight, prematurity, and congenital anomalies, while the leading causes of postneonatal mortality are SIDS, congenital anomalies, and accidents (*417*).

[6] The fetal mortality ratio is defined as the annual number of fetal deaths (of 20 weeks or more gestation) divided by the annual number of live births (*15,647*).

[7] Fetal, neonatal, and postneonatal mortality ratios/rates are shown for urban and rural areas by State in table 15-2.

Table 15-1—Selected Cause-Specific Infant Death Rates for Metro and Nonmetro Areas Adjusted for Race, 1987[a]

	Metro			Nonmetro		
Causes of death	Number of deaths	Percent of all deaths	Death rate (per 1,000)	Number of deaths	Percent of all deaths	Death rate (per 1,000)
All causes	30,157	100.0	9.88	8,251	100.0	10.07
Conditions originating in the perinatal period[b]	14,514	48.1	4.71	3,556	43.1	4.39
Short gestation and low birthweight[c]	2,799	9.3	0.89	555	6.7	0.70
Respiratory distress syndrome[d]	2,597	8.6	0.86	686	8.3	0.84
Other respiratory conditions of newborn[e]	2,813	9.3	0.92	743	9.0	0.91
Congenital anomalies[f]	6,053	20.1	2.03	1,831	22.2	2.19
Sudden infant death syndrome[g]	4,010	13.3	1.32	1,220	14.8	1.48
Accidents and adverse effects[h]	654	2.2	0.21	296	3.6	0.36
Pneumonia[i]	519	1.7	0.17	147	1.8	0.18

[a] Rates were standardized using the method described by Das Gupta in "A General Method of Decomposing a Difference Between Two Rates Into Several Components," Demography, vol. 15, No. 1, February 1978, pp. 99-112.

[b] These conditions originating in the perinatal period include International Classification of Diseases (ICD) (Ninth Revision) 760-779.

[c] These conditions originating in the perinatal period include ICD 765.

[d] This condition originating in the perinatal period includes ICD 769.

[e] These conditions originating in the perinatal period include ICD 770.

[f] Congenital anomalies include ICD 740-759.

[g] Sudden infant death syndrome includes ICD 798.0.

[h] Accidents and adverse effects include E800-E949.

[i] Pneumonia includes ICD 480-486.

SOURCE: U.S. Department of Health and Human Services, Centers for Disease Control, National Center for Health Statistics, Vital Statistics of the United States, 1987, vol. II, Mortality, Part B 1989, DHHS Pub. No. (PHS) 89-1102, table 2-15 (Washington, DC: U.S. Government Printing Office, 1989).

Table 15-2—Fetal and Infant Health Indicators by State and Metropolitan/Nonmetropolitan Area, 1985-86

State by region	Infant mortality rate[a]		Neonatal mortality rate[b]		Post-neonatal mortality rate[c]		Fetal mortality ratio[d]		Perinatal mortality ratio[e]		Low-birth-weight rate[f]	
	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro
New England												
Maine	10.1	7.5	6.9	5.0	3.2	2.5	6.3	5.8	13.2	10.8	5.3	4.9
White	10.2	7.6	7.0	5.1	3.2	2.6	6.3	5.9	13.3	10.9	5.2	4.9
Black	-	-	-	-	-	-	-	-	-	-	-	-
New Hampshire	8.5	10.3	5.7	6.8	2.8	3.6	5.3	6.0	11.0	12.7	4.9	5.4
White	8.6	10.2	5.8	6.7	2.9	3.5	5.4	6.0	11.2	12.7	4.8	5.4
Black	-	-	-	-	-	-	-	-	-	-	-	-
Vermont	9.9	9.0	-	6.0	-	3.0	-	6.4	13.6	12.4	5.3	5.6
White	10.0	8.8	-	5.9	-	2.9	-	6.4	13.8	12.3	5.2	5.6
Black	-	-	-	-	-	-	-	-	-	-	-	-
Massachusetts	8.8	8.8	6.2	5.7	2.6	3.1	6.6	6.5	12.8	12.1	5.8	4.6
White	7.9	8.9	5.7	5.8	2.3	-	6.2	6.5	11.9	12.3	5.4	4.5
Black	19.8	-	14.0	-	5.8	-	11.7	-	25.7	-	10.6	-
Rhode Island	8.8	-	6.3	-	2.5	-	8.0	-	14.3	-	6.5	4.5
White	8.4	-	6.0	-	2.4	-	7.6	-	13.6	-	6.1	4.3
Black	-	-	-	-	-	-	-	-	-	-	11.6	-
Connecticut	9.7	7.3	7.5	5.1	2.2	-	6.9	4.7	14.4	9.8	6.7	5.6
White	8.2	7.4	6.3	5.3	1.9	-	6.2	4.7	12.5	9.9	5.6	5.7
Black	19.8	-	15.4	-	4.4	-	11.6	-	26.9	-	13.3	-
Middle Atlantic												
New York	10.9	9.3	7.5	6.4	3.4	3.0	9.9	8.0	17.4	14.4	7.3	5.6
White	9.3	9.2	6.6	6.3	2.7	2.9	8.8	8.0	15.4	14.3	5.7	5.5
Black	16.4	-	10.7	-	5.7	-	13.9	-	24.6	-	12.3	9.1
New Jersey	10.4	7.9	7.0	5.8	3.4	2.1	8.1	6.0	15.1	11.8	7.0	5.5
White	8.4	7.7	5.9	5.6	2.5	2.0	7.0	5.9	12.9	11.5	5.5	5.2
Black	18.7	-	11.8	-	6.9	-	12.3	-	24.0	-	12.4	11.5
Pennsylvania	10.8	9.8	7.4	6.3	3.4	3.5	8.9	8.9	16.3	15.2	6.9	5.7
White	8.9	9.7	6.2	6.3	2.7	3.4	8.0	8.8	14.2	15.1	5.5	5.7
Black	20.1	-	13.5	-	6.6	-	13.2	-	26.7	-	13.6	11.7

NOTE: Rates are not shown for areas with fewer than 30 events. Hyphens (-) are used to denote fewer than 30 events.

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Table 15-2—Fetal and Infant Health Indicators by State and Metropolitan/Nonmetropolitan Area, 1985-86—Continued

State by region	Infant mortality rate[a]		Neonatal mortality rate[b]		Post-neonatal mortality rate[c]		Fetal mortality ratio[d]		Perinatal mortality ratio[e]		Low-birth-weight rate[f]	
	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro
Nebraska	10.2	9.5	7.0	5.9	3.3	3.6	7.2	7.4	14.2	13.4	5.8	5.1
White	8.9	9.3	6.3	5.8	2.7	3.4	6.7	7.3	12.9	13.2	5.1	5.0
Black	19.4	-	11.4	-	-	-	12.5	-	23.9	-	11.6	-
Kansas	9.6	8.6	6.0	5.1	3.6	3.6	6.4	6.7	12.4	11.7	6.5	5.9
White	9.0	8.5	5.7	5.0	3.3	3.5	5.9	6.4	11.6	11.3	5.5	5.6
Black	15.2	-	9.2	-	-	-	10.9	-	20.1	-	12.9	9.7
South Atlantic												
Delaware	14.4	10.9	10.6	8.2	3.8	2.7	6.6	8.5	17.2	16.8	7.5	7.2
White	11.0	10.1	8.1	7.9	-	-	5.6	6.4	13.7	14.3	5.8	6.0
Black	26.8	-	19.5	-	-	-	-	-	29.4	23.5	13.5	10.9
Maryland	11.8	12.1	8.3	7.7	3.5	4.4	8.3	7.1	16.6	14.8	7.8	6.6
White	9.1	10.8	6.2	6.8	2.9	3.9	6.4	6.7	12.6	13.6	5.5	5.3
Black	18.2	16.5	13.3	10.5	4.9	-	12.7	-	26.0	18.8	12.6	11.7
District of Columbia	20.9	-	16.0	-	4.9	-	12.4	-	28.4	-	12.7	-
White	12.0	-	9.1	-	-	-	-	-	14.4	-	5.1	-
Black	23.9	-	18.3	-	5.6	-	14.5	-	32.8	-	14.7	-
Virginia	11.5	10.5	8.1	6.7	3.4	3.8	10.2	12.1	18.3	18.8	7.0	7.1
White	9.2	8.8	6.5	5.6	2.8	3.3	8.4	10.7	14.9	16.2	5.4	6.0
Black	18.8	17.6	13.4	11.7	5.4	5.9	16.1	18.2	29.5	29.9	11.3	11.7
West Virginia	9.7	10.9	6.6	7.2	3.1	3.7	7.6	8.3	14.2	15.5	6.2	7.4
White	9.3	10.4	6.3	6.8	3.0	3.6	7.3	8.4	13.6	15.2	5.4	7.1
Black	-	-	-	-	-	-	-	-	-	-	9.8	12.9
North Carolina	11.5	11.8	7.9	7.4	3.6	4.4	8.1	9.2	16.1	16.7	7.7	8.2
White	9.7	8.8	6.7	5.5	3.0	3.3	6.7	7.8	13.4	13.2	5.9	6.2
Black	17.2	18.1	11.8	11.8	5.4	6.3	12.3	12.5	24.1	24.3	12.5	12.3
South Carolina	13.1	14.6	9.2	9.7	3.9	5.0	10.0	11.1	19.3	20.8	8.2	9.2
White	9.7	10.2	6.7	6.9	3.1	3.3	7.6	7.9	14.3	14.8	6.0	6.0
Black	20.2	19.6	14.6	12.7	5.6	6.9	15.3	14.6	29.8	27.4	12.6	12.7
Georgia	12.0	13.4	8.3	9.0	3.7	4.5	11.1	12.8	19.4	21.8	7.9	8.4
White	9.1	10.1	6.3	6.9	2.8	3.2	8.5	11.0	14.8	17.9	5.8	6.5
Black	17.9	19.9	12.3	13.0	5.6	6.9	16.0	16.3	28.3	29.3	11.9	12.0
Florida	11.0	11.8	7.4	7.0	3.7	4.8	8.5	9.0	15.9	16.0	7.6	7.2
White	8.8	10.4	6.0	5.9	2.8	4.5	6.9	7.1	12.9	13.0	6.0	5.8
Black	18.1	17.2	11.8	11.1	6.3	6.1	13.5	16.2	25.3	27.3	12.6	12.4

NOTE: Rates are not shown for areas with fewer than 30 events. Hyphens (-) are used to denote fewer than 30 events.

Table 15-2—Fetal and Infant Health Indicators by State and Metropolitan/Nonmetropolitan Area, 1985-86—Continued

State by region	Infant mortality rate[a]		Neonatal mortality rate[b]		Post-neonatal mortality rate[c]		Fetal mortality ratio[d]		Perinatal mortality ratio[e]		Low-birth-weight rate[f]	
	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro
East North Central												
Ohio	10.6	9.9	6.9	6.2	3.7	3.6	7.4	7.2	14.4	13.5	6.8	5.8
White	9.3	9.7	6.1	6.1	3.2	3.6	6.7	7.1	12.8	13.3	5.7	5.7
Black	17.2	-	11.0	-	6.2	-	11.1	-	22.1	21.0	12.1	8.3
Indiana	11.4	10.2	7.6	7.2	3.8	3.0	7.5	7.3	15.1	14.6	6.6	5.8
White	10.0	10.1	6.6	7.0	3.5	3.0	6.6	7.4	13.2	14.4	5.8	5.7
Black	20.6	-	14.2	-	6.4	-	12.4	-	26.6	-	11.8	10.5
Illinois	12.3	9.8	8.4	6.3	4.0	3.5	7.8	7.5	16.2	13.8	7.6	5.7
White	9.2	9.5	6.5	6.1	2.8	3.4	6.4	7.2	12.9	13.3	5.4	5.6
Black	21.9	17.8	14.3	-	7.6	-	11.9	16.2	26.2	26.4	13.9	10.6
Michigan	11.8	9.1	8.2	5.7	3.6	3.4	5.8	5.5	14.0	11.2	7.1	5.3
White	9.2	9.0	6.2	5.6	3.0	3.4	5.2	5.5	11.5	11.2	5.5	5.3
Black	22.7	-	16.4	-	6.3	-	8.1	-	24.5	-	13.8	8.6
Wisconsin	9.2	9.1	5.6	5.8	3.6	3.3	6.6	5.9	12.2	11.7	5.6	4.7
White	8.2	9.0	4.9	5.7	3.3	3.3	5.6	5.9	10.5	11.7	4.7	4.6
Black	17.3	-	11.4	-	6.0	-	13.9	-	25.3	-	12.4	-
West North Central												
Minnesota	8.9	9.2	5.6	5.3	3.3	3.9	6.1	6.8	11.7	12.1	5.2	4.3
White	8.6	9.3	5.5	5.5	3.1	3.8	6.1	6.8	11.5	12.3	4.8	4.2
Black	16.2	-	8.9	-	7.4	-	-	-	17.5	-	11.6	-
Iowa	9.8	8.4	6.3	5.3	3.5	3.1	5.3	6.5	11.7	11.8	5.5	4.9
White	9.7	8.3	6.3	5.2	3.4	3.1	5.2	6.4	11.5	11.6	5.2	4.9
Black	-	-	-	-	-	-	-	-	-	-	11.6	-
Missouri	10.9	9.4	7.1	5.7	3.9	3.7	6.2	7.3	13.3	13.0	7.1	6.1
White	9.1	9.3	6.0	5.6	3.0	3.7	5.2	7.1	11.2	12.7	5.5	5.8
Black	18.3	-	11.1	-	7.1	-	10.1	-	21.2	21.1	12.8	11.8
North Dakota	9.1	8.1	5.3	4.4	3.8	3.7	7.0	5.6	12.3	10.0	5.1	4.8
White	9.4	7.7	5.5	4.2	3.9	3.5	7.3	5.0	12.8	9.2	5.1	4.5
Black	-	-	-	-	-	-	-	-	-	-	-	-
South Dakota	12.0	11.5	7.2	6.0	4.7	5.5	5.7	6.4	13.0	12.5	5.4	5.4
White	12.3	9.0	-	5.3	-	3.6	-	6.1	13.6	11.4	5.3	5.0
Black	-	-	-	-	-	-	-	-	-	-	-	-

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Table 15-2—Fetal and Infant Health Indicators by State and Metropolitan/Nonmetropolitan Area, 1985-86—Continued

State by region	Infant mortality rate[a]		Neonatal mortality rate[b]		Post-neonatal mortality rate[c]		Fetal mortality ratio[d]		Perinatal mortality ratio[e]		Low-birth-weight rate[f]	
	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro
East South Central												
Kentucky	10.4	10.7	6.7	7.1	3.7	3.6	8.0	8.4	14.7	15.6	7.1	7.0
White	9.2	10.5	5.8	7.1	3.4	3.4	7.2	8.0	13.0	15.1	6.2	6.8
Black	17.6	14.0	12.0	-	5.6	-	13.1	16.4	25.1	24.7	13.0	10.8
Tennessee	12.1	9.4	8.1	5.4	4.0	3.9	6.8	8.2	14.9	13.6	8.0	7.6
White	8.9	8.6	5.9	4.9	3.0	3.7	5.8	7.2	11.7	12.2	6.1	6.9
Black	20.1	15.8	13.7	9.6	6.3	6.2	9.2	15.2	22.9	24.7	12.8	12.7
Alabama	13.0	12.7	9.1	7.9	3.9	4.8	10.2	12.3	19.3	20.2	8.1	7.9
White	10.2	9.8	7.0	6.7	3.2	3.1	7.6	9.8	14.7	16.5	5.9	6.0
Black	18.6	18.4	13.3	10.3	5.3	8.1	15.4	17.0	28.7	27.3	12.4	11.3
Mississippi	11.5	13.7	7.5	8.3	4.1	5.3	10.4	12.1	17.9	20.5	8.1	9.0
White	9.5	9.0	6.3	5.5	3.2	3.4	7.1	7.8	13.4	13.4	6.0	6.0
Black	15.3	18.3	9.8	11.1	5.5	7.1	15.9	16.2	25.7	27.4	11.9	12.0
West South Central												
Arkansas	11.2	10.8	6.8	6.0	4.4	4.7	7.8	8.2	14.7	14.3	8.2	7.5
White	9.9	10.0	6.1	5.9	3.8	4.0	6.8	6.9	12.9	12.8	6.7	6.2
Black	15.7	13.9	9.3	6.7	6.4	7.3	10.6	12.7	19.9	19.4	12.5	12.0
Louisiana	12.6	10.6	8.4	6.6	4.2	4.0	8.6	9.2	17.0	15.7	8.9	8.3
White	9.1	7.9	6.4	5.1	2.7	2.8	6.3	6.9	12.7	12.0	5.9	5.8
Black	18.0	15.5	11.5	9.3	6.5	6.2	12.3	13.4	23.7	22.7	13.2	12.6
Oklahoma	10.8	10.3	6.8	6.0	4.0	4.2	7.4	8.2	14.2	14.2	6.5	6.3
White	10.3	10.7	6.5	6.3	3.8	4.4	7.0	8.1	13.6	14.4	5.8	6.1
Black	18.5	15.7	11.3	-	7.2	-	10.7	-	22.0	21.0	11.6	11.9
Texas	9.6	9.9	6.1	5.9	3.5	3.9	7.0	7.8	13.1	13.8	6.8	6.8
White	8.7	9.3	5.6	5.7	3.1	3.6	6.5	7.3	12.1	13.0	5.9	6.2
Black	15.7	15.6	9.9	8.5	5.8	7.1	10.0	12.1	19.9	20.6	12.2	12.1
Mountain												
Montana	10.5	9.8	4.6	5.5	5.9	4.2	6.7	7.4	11.3	12.9	6.0	5.7
White	10.5	8.8	-	5.2	5.9	3.6	7.1	-	11.7	11.7	6.0	5.7
Black	-	-	-	-	-	-	-	-	-	-	-	-
Idaho	11.5	10.7	6.2	6.6	5.3	4.1	7.5	6.9	13.8	13.5	4.9	5.5
White	11.5	10.8	6.3	6.6	5.2	4.2	7.7	6.7	14.0	13.3	4.9	5.4
Black	-	-	-	-	-	-	-	-	-	-	-	- -
Wyoming	12.4	11.4	-	5.8	-	5.6	-	6.3	17.5	12.1	6.6	7.0
White	12.7	11.3	-	6.0	-	5.3	-	6.3	17.1	12.3	6.6	7.0
Black	-	-	-	-	-	-	-	-	-	-	-	-

NOTE: Rates are not shown for areas with fewer than 30 events. Hyphens (-) are used to denote fewer than 30 events.

Table 15-2—Fetal and Infant Health Indicators by State and Metropolitan/Nonmetropolitan Area, 1985-86—Continued

State by region	Infant mortality rate[a]		Neonatal mortality rate[b]		Post-neonatal mortality rate[c]		Fetal mortality ratio[d]		Perinatal mortality ratio[e]		Low-birth-weight rate[f]	
	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro
Colorado	9.2	8.2	5.5	5.1	3.7	3.1	8.1	9.4	13.6	14.5	7.8	7.4
White	8.8	8.4	5.2	5.2	3.6	3.2	8.0	9.4	13.1	14.6	7.3	7.4
Black	16.7	-	9.9	-	6.8	-	10.9	-	20.8	-	13.8	-
New Mexico	10.4	9.9	6.5	5.4	3.9	4.5	4.5	5.6	10.9	11.0	7.1	6.9
White	9.7	9.9	5.9	5.9	3.9	4.0	4.3	5.8	10.2	11.7	7.1	7.2
Black	-	-	-	-	-	-	-	-	-	-	9.8	9.3
Arizona	9.5	9.8	6.0	4.8	3.5	4.9	6.2	7.4	12.2	12.3	6.2	6.3
White	9.2	9.2	5.8	4.9	3.4	4.3	5.9	7.6	11.7	12.5	5.9	6.4
Black	14.0	-	10.0	-	-	-	9.8	-	19.8	-	12.1	9.8
Utah	9.0	9.3	5.1	5.6	3.9	3.7	6.6	6.8	11.7	12.4	5.6	5.3
White	9.1	9.5	5.2	5.8	3.9	3.7	6.5	6.8	11.7	12.5	5.5	5.3
Black	-	-	-	-	-	-	-	-	-	-	10.3	-
Nevada	8.9	8.4	5.1	3.5	3.8	4.8	6.6	9.9	11.7	13.4	7.3	6.5
White	8.7	8.4	5.0	3.8	3.7	4.6	6.3	9.2	11.2	13.0	6.3	6.2
Black	14.0	-	-	-	-	-	10.2	-	18.5	-	13.2	-
Pacific												
Washington	10.2	10.4	5.9	5.5	4.3	4.9	6.1	6.0	11.9	11.6	5.3	4.7
White	10.3	10.3	5.9	5.4	4.4	4.9	5.8	6.3	11.7	11.7	4.9	4.6
Black	13.2	-	8.3	-	4.9	-	9.1	-	17.4	-	10.7	-
Oregon	9.4	10.0	5.0	5.1	4.5	5.0	6.0	7.4	11.0	12.4	5.1	5.2
White	9.3	9.9	4.8	5.0	4.5	4.9	6.1	7.4	10.9	12.4	4.9	5.2
Black	17.0	-	-	-	-	-	-	-	18.1	-	11.1	-
California	9.2	9.8	5.8	5.4	3.4	4.4	6.7	7.2	12.5	12.6	6.0	5.4
White	8.8	9.9	5.6	5.5	3.2	4.3	6.3	7.2	11.9	12.7	5.2	5.2
Black	16.4	-	10.1	-	6.2	-	11.4	-	21.5	-	12.0	8.7
Alaska	9.1	12.0	4.9	6.2	4.2	5.8	6.0	7.8	10.9	14.0	4.8	4.6
White	9.0	10.6	4.7	6.2	4.3	4.4	5.4	7.4	10.1	13.6	4.3	4.1
Black	-	-	-	-	-	-	-	-	-	-	9.0	9.8
Hawaii	9.7	7.0	6.5	4.6	3.2	2.4	9.4	9.5	15.9	14.1	6.6	6.8
White	8.1	-	5.4	-	-	-	8.0	-	13.4	18.6	5.3	5.6
Black	-	-	-	-	-	-	-	-	22.0	-	9.0	-

NOTE: Rates are not shown for areas with fewer than 30 events. Hyphens (-) are used to denote fewer than 30 events.

(continued on next page)

Table 15-2—Fetal and Infant Health Indicators by State and Metropolitan/Nonmetropolitan Area, 1985-86—Continued

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[a] The infant mortality rate is the number of infant deaths (under 1 year of age) in 1985 and 1986 divided by the number of live births during 1985 and 1986. Infant mortality is shown as deaths per 1,000 live births.

[b] The neonatal mortality rate is the number of neonatal deaths (under 28 days) in 1985 and 1986 divided by the number of live births during 1985 and 1986. Neonatal mortality is shown as deaths per 1,000 live births.

[c] The postneonatal mortality rate is the number of postneonatal deaths (from 28 days to 1 year of age) in 1985 and 1986 divided by the number of live births during 1985 and 1986. Postneonatal mortality is shown as deaths per 1,000 live births.

[d] The fetal mortality ratio is the number of fetal deaths in 1985 and 1986 divided by the number of live births during 1985 and 1986. Fetal deaths include only those with stated or presumed period of gestation of 20 weeks or more. Fetal mortality is shown as deaths per 1,000 live births.

[e] The perinatal mortality ratio is the number of fetal deaths and neonatal deaths (under 28 days) in 1985 and 1986 divided by the number of live births during 1985 and 1986. Fetal deaths include only those with stated or presumed period of gestation of 20 weeks or more. Perinatal mortality is shown as deaths per 1,000 live births.

[f] The low-birthweight rate is the number of live births weighing less than 2,500 grams in 1985 and 1986 divided by the number of live births during 1985 and 1986. Low-birthweight is shown as the number of low-birthweight births per 100 live births.

SOURCES: U.S. Department of Health and Human Services, Centers for Disease Control, National Center for Health Statistics, Vital Statistics of the United States, 1985, vol. II, Mortality, Part B. DHHS Pub. No. (PHS) 88-1102, table 8-2; Vital Statistics of the United States, 1986, vol. II, Mortality, Part B, DHHS Pub. No. (PHS) 88-1114, table 8-2; Vital Statistics of the United States, 1985, vol. I, Natality, DHHS Pub. No. (PHS) 88-1113, table 2-2; Vital Statistics of the United States, 1986, vol. I, Natality, DHHS Pub. No. (PHS) 89-1113, table 2-2 (Washington, DC: U.S. Government Printing Office, 1987, 1988, 1988, and 1989, respectively).

Table 15-3—Infant Death Rates and Fetal Death Ratios by Race in Metropolitan and Nonmetropolitan Areas[a], 1987

	Metro			Nonmetro		
	Total	Urban places[b]	Balance of area	Total	Urban places[c]	Balance of area
Infant mortality rate[d]	10.2	10.8	8.6	9.8	10.2	9.7
■ white infants	8.6	8.9	8.0	8.8	9.1	8.7
■ nonwhite infants	15.5	15.7	14.2	15.0	14.8	15.1
■ black infants	18.1	18.1	17.7	16.7	16.3	16.9
Neonatal mortality rate[e]	6.6	7.0	5.6	6.1	6.3	6.0
■ white infants	5.5	5.7	5.1	5.4	5.6	5.4
■ nonwhite infants	10.1	10.2	9.6	9.4	9.0	9.5
■ black infants	11.9	11.9	12.3	10.7	10.1	11.0
Postneonatal mortality rate[f]	3.6	3.8	3.0	3.7	3.9	3.7
■ white infants	3.1	3.2	2.9	3.4	3.5	3.3
■ nonwhite infants	5.4	5.5	4.6	5.6	5.8	5.6
■ black infants	6.2	6.2	5.4	6.0	6.2	5.9
Fetal mortality ratio[g]	7.6	7.9	7.1	7.9	8.2	7.9
■ white infants	6.6	6.7	6.4	7.0	7.3	7.0
■ nonwhite infants	11.3	11.0	12.7	12.5	11.9	12.8
■ black infants	12.7	12.4	14.8	14.5	13.7	14.9

[a] Deaths are recorded by maternal residence, not place of death.

[b] Urban places in metro counties are those with populations of 10,000 or more in 1980.

[c] Urban places in nonmetro counties are those with populations of 10,000 or more but fewer than 50,000 in 1980.

[d] **Infant mortality rate:** The annual number of deaths among children less than 1 year old as a proportion of the annual number of live births.

[e] **Neonatal mortality rate:** The annual number of deaths during the first 27 days of life as a proportion of the annual number of live births.

[f] **Postneonatal mortality rate:** The annual number of deaths that occur from 28 days to age 1 as a proportion of the annual number of live births.

[g] **Fetal mortality ratio:** The annual number of fetal deaths occurring at gestations of 20 weeks or more as a proportion of the annual number of live births.

SOURCE: U.S. Department of Health and Human Services, Centers for Disease Control, National Center for Health Statistics, Vital Statistics of the United States, 1987, vol. II, Mortality, Part B, DHHS Pub. No. (PHS) 89-1102, table 8-2 (Washington, DC: U.S. Government Printing Office, 1989).

difficult because of regional variation in reporting fetal mortality (*647*).

The higher postneonatal mortality rates in rural areas could be explained if deaths of high-risk infants were postponed beyond the neonatal period. This could occur if, for example, high-risk rural infants are less likely to survive after being discharged from remote tertiary centers because they have limited access to continued specialty care and social service support (*277*). Another explanation for the relatively high rural postneonatal mortality is the higher incidence in rural than urban areas of infant deaths attributable to congenital anomalies, SIDS, and accidents—all significant causes of postneonatal mortality. In an Alabama study, infection was identified as a contributor to the high rural postneonatal mortality (*176*).

There is limited information about the maternal risk factors that increase the chances of having a fetal or infant death. An equal proportion (30 percent) of pregnant women in urban and rural areas have at least one medical condition that seriously affects pregnancy (*8*). Some information regarding smoking-associated risks is available from the 1985 Health Interview Survey, which found that rural women were just as likely as urban women to report smoking cigarettes in the 12 months preceding the birth of their last child (32 percent). However, women smokers in rural areas were more likely to cut down smoking and less likely to quit (38 percent cut down; 19 percent quit) than were urban women (35 percent cut down; 22 percent quit) (*649*).

Low Birthweight and Prematurity

Babies that are born too small or too soon are more likely to die; if they survive they are more likely to require hospitalization and very expensive, sophisticated care (*417*). There are only slight differences in low birthweight rates[8] between urban and rural

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[8] Low-birthweight babies are those born weighing less than $5^1/_2$ pounds (2,500 grams).

Table 15-4—Percent of Births That Are Low Birthweight[a] and Preterm[b] by Metropolitan and Nonmetropolitan Areas, 1986

	Low birthweight		Preterm		Low birthweight and preterm	
	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro
All races[c]	6.89	6.49	6.33	6.21	3.12	2.88
White	5.60	5.75	5.08	5.20	2.51	2.52
Black	12.66	11.72	11.88	12.79	5.97	5.52

[a] Births weighing less than 2,500 grams are low birthweight.
[b] Births occurring at 20 to 36 weeks are preterm births.
[c] Includes races other than white and black.

SOURCE: U.S. Department of Health and Human Services, Centers for Disease Control, National Center for Health Statistics, Vital Statistics of the United States, 1986, vol. I, Natality, DHHS Pub. No. (PHS) 88-1123, table 1-88 (Washington, DC: U.S. Government Printing Office, 1988).

white infants, but among blacks, low birthweight rates are 8 percent lower in rural than urban areas (table 15-4). Colorado and New Mexico are among the States with the highest proportion of white low-birthweight newborns in rural areas (7.4 and 7.2 percent) and West Virginia, Tennessee, and South Carolina are among the States with the highest proportion of black low-birthweight newborns in rural areas (12.9, 12.7, and 12.7 percent) (table 15-2).

The apparently higher incidence of fetal deaths among blacks could be depressing the incidence of low-birthweight newborns for the same reason that it may be an explanation for low rural neonatal death rates—rural low-birthweight fetuses may not be surviving until birth or may be dying at birth and reported as fetal deaths. There are relatively fewer very-low-birthweight black babies reported in rural than in urban areas, which could be explained by either differential mortality or reporting (*646*). Preterm births[9] occur somewhat more frequently in rural than urban areas for both whites and blacks (table 15-4).[10]

Fertility

Fertility rates[11] are higher in rural than in urban areas, although this pattern is not consistent across all racial and ethnic groups (table 15-5) (*630*). Women in rural areas are more likely to have at least one child, especially at younger ages. In 1988, for example, over one-third (34 percent) of women age 18 to 24 in rural areas reported having children compared with less than one-quarter (24 percent) in urban areas (*630*). Correspondingly, a greater proportion of births occur to teenage mothers in rural than urban areas (15 percent *v.* 12 percent) (*650*). Despite these differences, the number of births expected in a woman's lifetime is similar for rural and urban women (*630*).

Women in rural areas are much less likely than urban women to have had elective abortions. In 1987, only 14 percent of abortion patients were rural residents, yet rural residents made up 23 percent of the population (*217*).

Maternal Mortality

Maternal mortality among rural women is worse than for urban women in general, but mortality rates for both have declined over time. In 1980, 334 women died from conditions related to complications of pregnancy and childbirth.[12] In that year maternal mortality rates[13] were 23 percent higher in rural than urban areas (10.1 *v.* 8.2 maternal deaths

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[9] Premature babies are those born at 20 to 36 weeks gestation (*646*).

[10] The incidence of both low birthweight and prematurity is nearly the same in urban and rural areas for whites, but for blacks it is slightly higher in urban than rural areas (table 15-4).

[11] The fertility rate is defined here as the number of live births to women age 18 to 44 in 1988, divided by the estimated mid-year population of women 18 to 44 years of age (*630*).

[12] Maternal mortality includes deaths due to complications of pregnancy, childbirth, and the puerperium (the period of 42 days following the termination of pregnancy). Causes of maternal mortality include uterine hemorrhage, toxemia, and underlying medical conditions that complicate pregnancy such as diabetes and infections (e.g., tuberculosis, syphilis) (*647*).

[13] The maternal mortality rate is the annual number of deaths related to pregnancy divided by the annual number of live births.

Table 15-5—Fertility Rates[a] by Metropolitan and Nonmetropolitan Residence, 1988

	Total	Metro Total	Metro Central city	Metro Noncentral city	Nonmetro
All races	69.7	68.5	73.1	65.4	74.6
White	66.0	64.4	67.4	62.7	71.9
Black	87.0	86.6	89.6	80.3	88.8
Hispanic[b]	94.0	96.6	96.3	97.1	58.2

[a] Fertility rates = annual live births per 1,000 women age 18 to 44.

[b] Persons of Hispanic origin may be of any race.

SOURCE: U.S. Department of Commerce, Bureau of the Census, "Fertility of American Women: June 1988," Current Population Reports, Series P-20, No. 436, table 4 (Washington, DC: U.S. Government Printing Office, 1989).

per 100,000 live births).[14] As of 1986, the total number of maternal deaths had declined to 272. In 1986, maternal mortality rates were still slightly higher in rural than in urban areas, but the highest rates occurred in the most densely populated urban areas (table 15-6).

MATERNAL AND INFANT SERVICES IN RURAL AREAS

Use of Prenatal Care

Prenatal care prevents many poor pregnancy outcomes, especially among women who are at high risk of adverse outcomes, and augmented prenatal care programs targeted to high-risk women appear to improve the onset and frequency of prenatal visits (*561,619*). The three basic components of prenatal care are (*697*):

- early and continuing risk assessment,
- health promotion, and
- medical and psychosocial interventions and followup (which may include referral to, or consultation with, other specialized providers).

Prenatal care ideally involves frequent provider-patient contacts that begin before or early in pregnancy (*697*). Rural women are slightly less likely than urban women to begin prenatal care during the first trimester of pregnancy, but more urban women have no prenatal care at all (table 15-7).

Table 15-6—Maternal Mortality[a] by Metropolitan and Nonmetropolitan Residence and Race, 1986

	Number of deaths	Death rate per 100,000
U.S.	272	7.24
Metro	210	7.22
Urban places[b]	170	8.40
Balance of area	40	4.51
Nonmetro	62	7.30
Urban places[c]	13	6.98
Balance of area	49	7.40
White	146	4.91
Black	117	18.83
All other	126	19.40

[a] Maternal mortality rate is the annual number of deaths related to pregnancy divided by the annual number of live births.

[b] Urban places in metro counties are those with populations of 10,000 or more in 1980.

[c] Urban places in nonmetro counties are those with populations of 10,000 or more, but fewer than 50,000 in 1980.

SOURCE: U.S. Department of Health and Human Services, Centers for Disease Control, National Center for Health Statistics, Vital Statistics of the United States, 1986, vol. II, Mortality, Part B, DHHS Pub No. (PHS) 88-1114, tables 8-9, 8-5 (Washington, DC: U.S. Government Printing Office, 1988).

Women living in rural areas that include a large economically disadvantaged population might be expected to have less access to prenatal care. This expectation is borne out for white women; a greater proportion of white pregnant women in poor rural counties[15] received inadequate prenatal care in

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[14] These mortality rates were adjusted for maternal age and race (*159*).

[15] Poor rural counties include the 332 nonmetro counties in 26 States that had at least 25 percent of residents living below the Federal poverty threshold in 1979 (*558*).

[16] Inadequate prenatal care is either care that begins during the third trimester of pregnancy or no prenatal care (*558*).

Table 15-7—Live Births by Month Prenatal Care Began, by Race and Residence, 1987

	Metro	Nonmetro
Total births	2,970,059	839,335
1st-2nd month	54.67	49.23
3rd month	20.16	23.43
4th-6th month	16.87	19.70
7th-9th month	3.91	4.54
No prenatal care	2.08	1.46
Not stated	2.30	1.65
White	2,290,927	701,561
1st-2nd month	58.58	52.02
3rd month	20.00	23.61
4th-6th month	14.58	17.71
7th-9th month	3.28	3.87
No prenatal care	1.58	1.18
Not stated	1.99	1.61
Black	538,822	102,745
1st-2nd month	38.88	34.41
3rd month	20.87	22.51
4th-6th month	26.25	30.65
7th-9th month	6.34	7.71
No prenatal care	4.39	3.03
Not stated	3.28	1.68

SOURCE: U.S. Department of Health and Human Services, Centers for Disease Control, National Center for Health Statistics, unpublished tabulation from the Natality Statistics Branch, November 1988.

1984[16] than white pregnant women nationally. Black women residing in such areas, however, were more likely to have received adequate prenatal care than black women nationally (table 15-8) (*558*).[17] In 1985, infant mortality and the incidence of low birthweight were higher for both black and white infants born in poor rural counties than in the Nation as a whole (table 15-8) (*558*).

Access to Rural Maternal and Infant Care

Available evidence suggests that fetal, infant, and maternal mortality are somewhat higher and that late prenatal care is more a problem in rural than in urban areas. Access to maternity and infant care in rural areas could be impaired by:

- absolute shortages of obstetric providers,
- shortages of obstetric providers who participate in the Medicaid program,
- a lack of insurance coverage and the inability to pay for obstetric services,
- a decline in the number of hospitals equipped and staffed to provide obstetric services, and
- residents' geographic isolation from services and poor access to regional perinatal care systems.

Availability of Rural Obstetric Providers

Supply of Providers in Rural Areas—Information from a number of State surveys indicates that there have been declines in the availability of obstetric providers (box 15-A). This, coupled with the low population density that characterizes many rural areas, results in longer travel times to obstetric providers for rural than for urban residents (see ch. 10, table 10-16).[18]

Maternity services may be delivered by any of three groups of providers: obstetricians, other physicians (primarily family physicians (FPs)), and other practitioners, such as certified nurse-midwives (CNMs). In 1987, births in urban and rural areas were almost equally likely to be attended by a physician, but nonphysician providers were most likely to deliver babies in the most urban areas[19] (4.2 percent of births) and in the most rural areas[20] (3.5 percent of births). Black women were more likely than white women in both urban and rural areas to have had a nonphysician provider (table 15-9).

Obstetricians provide most obstetric care in urban areas, but in rural areas one-half to two-thirds of all obstetric care providers are FPs (*349,543*). In 1988, there were only 25 obstetricians per 100,000 women of reproductive age in rural areas, compared with 61 in urban areas (table 15-10). Obstetricians are even less available in smaller nonmetro counties (see ch. 10, table 10-11). The absence of obstetricians in many rural areas is partially offset by the presence of general and family practitioners (G/FPs) (including doctors of osteopathy (DOs)) who are trained to

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[17] During the period 1980 to 1984, the States with the highest levels of inadequate prenatal care in poor rural counties were in the Southwest (i.e., New Mexico, Texas, Utah, and Arizona) (*558*).

[18] Rural residents travel an average of 24 minutes to reach an obstetrician/gynecologist and 20 minutes to reach an FP in contrast with urban residents who, on average, travel 19 and 16 minutes to reach these providers (*644*).

[19] Urban places within metro counties.

[20] Nonurban places in nonmetro counties.

Table 15-8—Perinatal Health Care Indicators in Poor Rural Counties[a]

	National		Poor rural counties	
	White	Black	White	Black
Infant mortality (1985)	9.3	18.2	10.0	19.2
Low birthweight (1985)	5.6	12.4	6.6	12.6
Inadequate prenatal care (1984)[b]	4.7	9.6	4.9	7.3

[a] Poor rural counties include the 332 nonmetro counties in 26 States that had at least 25 percent of residents living below the Federal poverty threshold in 1979.

[b] Percent of births to women who receive either no prenatal care or who began receiving care during their third trimester of pregnancy, 1984.

SOURCE: J. Shotland, D. Loonin, and E. Haas, Off to a Poor Start: Infant Health in Rural America (Washington, DC: Public Voice for Food and Health Policy, October 1988).

Box 15-A—Obstetric Provider Availability: Selected State Reports

Arizona—Of available rural obstetric providers (DOs, G/FPs and obstetricians), 58 percent reported that they conducted deliveries in 1989, compared with 74 percent of providers in 1985. Of those discontinuing obstetric practice, 87 percent cited malpractice concerns as the reason. Forty-four percent of physicians that had ceased delivering babies said they would resume if there was a malpractice insurance subsidy available *(221)*.

Colorado—As of July 1988, there were 18 rural counties in Colorado with no private practice maternity care providers. Over 1,000 women living in these counties had babies and had to travel an average of 32 miles to deliver *(136)*.

Iowa—A 1986 survey found that of 496 physicians who had provided obstetric services since 1981, 152 (31 percent) had discontinued providing them because of liability considerations. Of these 152, 78 described their practices as rural *(225)*.

Missouri—A 1988 survey of 328 rural G/FPs showed that 40 percent practiced obstetrics, but that there had been a 27 to 40 percent decrease since 1984 in the number of obstetric providers in rural areas *(745)*.

Montana—A 1989-90 survey found that 12 percent of physicians who had provided obstetric services at one time had dropped obstetric care. As many as 35 percent of FPs and 9 percent of obstetricians had dropped obstetrics. Only 29 percent of physicians who ever provided obstetric services reported that they had not limited their services to Medicaid patients, decreased the number of deliveries they perform, decreased the level of high-risk obstetric care, or limited their practices in any way. The cost of professional liability insurance was cited most often as the reason obstetric providers had changed their practices *(173)*.

North Carolina—In 1989-90, there were over 4,000 births in 20 mostly rural counties that had no obstetric providers (i.e., physicians, nurse-midwives) *(537)*.

Texas—As of 1989, 43 percent of rural physicians had curtailed obstetric services and 84 counties offered no labor or delivery services *(97)*

Washington—The proportion of rural G/FPs providing obstetric care fell from 80 percent in 1977 to 67 percent in 1986. Only 38 percent of urban G/FPs provided obstetric care in 1986 *(526)*.

deliver obstetric care. In 1988, rural areas had more G/FPs (137 per 100,000 women of reproductive age) than did urban areas (108 per 100,000 women of reproductive age) (table 15-10).

The availability of rural physicians trained to deliver obstetric care varies by region. In rural areas of the East South Central region of the country[21] there were 156 physicians trained to provide obstetric services (i.e., G/FPs, obstetricians, and DOs) per 100,000 rural women of reproductive age. In contrast, there were 242 per 100,000 in the rural areas of States in the West North Central Region (table 15-10). Over half a million rural residents live in counties that are without a physician trained to

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[21] See app. F for a list of States in each region.

Table 15-9—Live Births by Type of Birth Attendant, by Race and Place of Delivery, 1987

	Total number of deliveries	Attendant		
		Physician	Midwife[a]	Other
Metro				
All	2,970,059	96.3	3.0	0.6
White	2,290,927	96.4	3.0	0.6
Black	538,822	96.1	3.2	0.7
Urban places 50,000+				
All	1,483,338	95.7	3.5	0.7
White	993,102	95.6	3.6	0.8
Black	402,301	96.2	3.2	0.7
Urban places 10,000-49,999				
All	579,993	96.6	2.9	0.5
White	485,907	96.8	2.7	0.5
Black	67,160	95.2	4.1	0.6
Balance of area				
All	906,728	97.1	2.4	0.5
White	811,918	97.1	2.4	0.5
Black	69,361	96.9	2.4	0.7
Nonmetro				
All	839,335	96.6	2.8	0.6
White	701,561	97.1	2.3	0.6
Black	102,745	96.5	3.0	0.5
Urban places 10,000-49,999				
All	183,260	97.1	2.5	0.4
White	146,735	97.4	2.2	0.4
Black	29,343	96.4	3.2	0.3
Balance of area				
All	656,075	96.5	2.9	0.6
White	554,826	97.0	2.4	0.6
Black	73,402	96.5	2.9	0.5

[a] Midwife includes lay midwives, and certified and noncertified nurse midwives.

SOURCE: U.S. Department of Health and Human Services, Centers for Disease Control, National Center for Health Statistics, 1987 Natality, unpublished tabulation, November 1988.

deliver obstetric care (table 15-11),[22] and other areas are without available obstetric services because many physicians trained to provide obstetric services do not provide them. In 1988, for example, there was in North Carolina 1 nonmetro county without a physician trained to deliver obstetric care (table 15-11), but 18 nonmetro counties that lacked obstetric services because available physicians and CNMs were not providing them (*512*).

G/FPs are particularly well suited as obstetric providers in areas of low population density because they can provide both obstetric and nonobstetric care.[23] Consequently, G/FPs generally require a smaller population base (3,000 to 4,000 residents) than do obstetricians (who require about 11,000 residents) (*331*). In 1988, 9 out of every 10 FPs (91 percent) had hospital admitting privileges, but of these less than one-third (29 percent) reported that they currently practiced obstetrics (*545*). FPs in rural areas are almost twice as likely as urban FPs to offer routine obstetric care (43 *v.* 23 percent). There are, however, sizable regional differences in the extent to which rural FPs provide obstetric care. Only 15 percent of rural FPs provide obstetric care in the South Atlantic region, compared with 70 percent in the West North Central region (table 15-12).

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[22] In contrast, there are only 2 metro counties, with a total population of 21,900, that are without a physician trained to provide obstetric care.

[23] In 1985, 53 percent of all physician visits and 70 percent of adult visits to physicians in rural areas were to family physicians (*447*).

Table 15-10—Ratio of Active MD General/Family Practitioners, Active MD Obstetrician/Gynecologists, Active MD Pediatricians, and Active DOs per 100,000 Reproductive-Age Women by State and Census Region and Division, 1987-88[a]

	Number of physicians per 100,000 reproductive-age women[b]									
	MD general/family practitioners		MD obstetrician/gynecologists		MD pediatricians[c]		DOs[d]		G/FP + OB/GYN + DO	
	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro
United States	108.0	137.1	61.4	24.5	69.7	22.3	44.0	30.8	213.4	192.4
Northeast	87.0	121.4	66.4	31.7	86.4	34.1	51.8	35.4	205.2	188.5
New England	73.7	154.7	63.5	37.5	83.3	50.6	18.5	39.7	155.7	231.9
Connecticut	73.4	NA	75.8	NA	87.5	NA	8.0	NA	157.2	NA
Maine	138.9	172.8	46.7	32.8	52.0	35.4	116.5	77.1	302.1	282.7
Massachusetts	62.3	127.3	60.3	48.5	86.4	54.6	10.5	12.1	133.1	187.9
New Hampshire	97.1	172.7	50.6	42.4	54.1	70.7	7.6	12.6	155.3	227.7
Rhode Island	71.0	NA	58.5	NA	88.0	NA	45.6	NA	175.1	NA
Vermont	132.0	133.6	86.5	33.7	111.5	53.4	11.4	26.7	229.9	194.0
Middle Atlantic	91.6	108.1	67.4	29.3	87.5	27.5	63.2	33.7	222.2	171.1
New Jersey	80.4	NA	63.9	NA	86.0	NA	78.5	NA	222.8	NA
New York	75.1	103.5	74.5	31.7	105.1	30.1	18.9	8.9	168.5	144.1
Pennsylvania	127.8	112.5	58.0	27.1	59.0	25.0	126.0	57.6	311.8	197.2
Midwest	112.3	145.2	54.7	18.2	61.1	17.0	71.4	50.4	238.4	213.8
East North Central	106.6	130.8	54.4	19.9	60.2	18.9	75.2	40.6	236.2	191.3
Illinois	107.3	143.3	59.2	21.8	69.1	20.4	30.9	16.1	197.4	181.2
Indiana	146.4	139.7	40.5	17.3	42.2	13.7	23.4	17.8	210.3	174.8
Michigan	78.2	104.8	56.9	18.9	54.7	18.1	164.9	94.9	300.0	218.6
Ohio	106.8	102.1	55.0	22.6	64.4	21.3	87.8	55.2	249.6	179.9
Wisconsin	121.8	177.7	49.0	17.5	56.5	20.5	28.6	14.2	199.4	209.4
West North Central	131.0	163.4	55.6	16.1	63.8	14.5	59.1	62.8	245.7	242.3
Iowa	143.2	156.7	40.3	12.5	51.5	11.0	138.6	54.3	322.1	223.5
Kansas	140.6	168.4	52.7	20.6	55.8	22.9	60.2	46.6	253.5	235.6
Minnesota	170.6	206.7	49.3	14.3	62.2	11.2	6.1	10.5	226.0	231.5
Missouri	78.5	96.8	67.6	18.1	74.1	12.4	93.5	178.1	239.6	293.0
Nebraska	138.5	201.2	58.8	11.4	67.7	15.4	8.4	4.0	205.7	216.6
North Dakota	169.9	187.1	56.6	24.8	52.0	18.0	12.2	11.3	238.7	223.2
South Dakota	204.9	193.8	50.2	16.4	48.2	17.4	10.0	28.9	265.1	239.1
South	107.5	128.6	64.3	25.8	65.8	22.1	31.4	18.1	203.2	172.5
South Atlantic	112.0	123.6	70.5	31.7	73.5	27.7	29.4	14.6	211.9	169.9
Delaware	109.7	73.6	63.5	35.7	72.2	39.9	69.3	25.2	242.5	134.5
Distr. of Columbia	91.4	NA	138.8	NA	133.1	NA	18.3	NA	248.5	NA
Florida	140.4	145.1	64.5	31.3	65.2	28.1	65.1	35.1	270.0	211.5
Georgia	74.6	113.1	64.7	32.1	58.5	21.9	20.7	11.8	160.0	157.0

NOTE: NA = does not apply. In Rhode Island and Connecticut, some counties are part MSA and part non MSA. These counties were categorized as MSA counties in the Area Resource File. In Alaska, the entire State is categorized as MSA (Alaska has no counties).

(continued on next page)

Table 15-10—Ratio of Active MD General/Family Practitioners, Active MD Obstetrician/Gynecologists, Active MD Pediatricians, and Active DOs per 100,000 Reproductive-Age Women by State and Census Region and Division, 1987-88[a]—Continued

	Number of physicians per 100,000 reproductive-age women[b]									
	MD general/family practitioners		MD obstetrician/gynecologists		MD pediatricians[c]		DOs[d]		GP/FP + OB/GYN + DO	
	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro
Maryland	89.9	122.6	98.8	59.1	116.3	36.1	10.8	7.2	199.5	188.9
North Carolina	106.6	119.4	61.9	31.7	65.3	29.8	7.7	3.8	176.2	154.9
South Carolina	140.9	124.0	53.7	28.5	46.9	25.6	5.4	6.5	200.0	159.0
Virginia	102.8	141.0	62.2	31.4	68.5	26.5	11.3	5.7	176.3	178.1
West Virginia	145.2	122.5	54.1	28.0	44.4	32.4	40.1	52.0	239.4	202.5
East South Central	109.2	122.0	61.9	23.1	62.6	20.8	8.3	10.9	179.4	156.0
Alabama	107.2	112.1	59.1	20.4	53.8	16.3	8.4	7.2	174.7	139.7
Kentucky	126.4	125.9	57.1	24.7	68.1	25.0	9.5	9.2	193.0	159.8
Mississippi	108.7	126.6	61.8	28.9	64.5	23.5	9.6	10.9	180.1	166.4
Tennessee	101.7	120.5	66.6	16.9	66.1	16.3	7.4	16.3	175.7	153.7
West South Central	100.0	143.0	55.9	19.1	55.8	14.9	43.8	30.7	199.7	192.8
Arkansas	150.4	183.5	57.3	20.1	63.1	15.0	6.7	11.2	214.4	214.8
Louisiana	82.8	120.7	69.6	22.4	65.8	15.6	3.6	3.3	156.0	146.4
Oklahoma	108.2	125.1	51.1	20.0	50.7	15.5	126.6	74.8	285.9	219.9
Texas	99.5	143.2	53.3	16.6	53.7	14.3	43.8	32.8	196.6	192.6
West	127.0	157.2	59.0	29.8	65.8	26.9	25.0	25.8	211.0	212.8
Mountain	111.0	151.0	56.6	27.1	57.8	24.7	53.2	29.9	220.8	208.0
Arizona	125.7	144.8	65.2	30.2	65.4	30.9	105.3	47.0	296.2	222.0
Colorado	106.5	174.7	53.3	14.5	57.5	17.3	46.3	55.9	206.1	245.1
Idaho	119.7	146.6	41.3	26.1	33.0	20.5	16.5	17.8	177.5	190.5
Montana	71.9	168.8	41.9	33.8	45.9	26.7	8.0	19.7	121.8	222.3
Nevada	96.1	184.5	53.3	26.0	31.2	21.3	32.7	23.7	182.1	234.2
New Mexico	119.5	123.1	60.6	30.6	68.8	31.2	51.9	34.7	232.0	188.4
Utah	93.1	152.1	55.0	24.9	64.1	21.2	6.0	7.5	154.1	184.5
Wyoming	199.7	139.7	38.8	29.5	33.3	23.8	2.8	12.5	241.3	181.7
Pacific	131.2	166.6	59.7	33.8	67.9	30.0	17.6	19.8	208.5	220.2
Alaska	127.8	NA	29.4	NA	33.8	NA	27.2	NA	184.4	NA
California	129.5	170.8	61.8	34.7	72.1	29.4	13.3	13.6	204.6	219.1
Hawaii	78.0	176.6	74.4	69.9	80.1	66.0	28.7	19.4	181.1	265.9
Oregon	115.5	150.2	59.0	30.8	48.5	24.6	42.4	22.0	216.9	203.0
Washington	164.0	175.5	46.7	25.5	50.7	26.6	31.7	25.5	242.4	226.5

NOTE: NA = does not apply. In Rhode Island and Connecticut, some counties are part MSA and part non MSA. These counties were categorized as MSA counties in the Area Resource File. In Alaska, the entire State is categorized as MSA (Alaska has no counties).

[a] "Active" MDs and DOs (doctors of osteopathy) include physicians in patient care, research, administration, and teaching. Data from the American Medical Association as of Jan. 1, 1988. Data from the American Osteopathic Association as of 1987.

[b] Population of women age 15 to 44, 1984. Based on estimates from the Current Population Survey, U.S. Census Bureau.

[c] Does not includes pediatric subspecialties.

[d] Includes all active DOs, regardless of specialty orientation.

SOURCE: T.C. Ricketts, Rural Health Research Center, University of North Carolina, Chapel Hill, NC. Analysis of unpublished data (provided by the Health Resources and Services Administration) conducted under contract to the Office of Technology Assessment.

Table 15-11—Number and Resident Population of Nonmetropolitan Counties Without an Active General Practitioner, Family Practitioner, or Obstetician/Gynecologist, by Region and State, 1988[a] [b]

	Number of nonmetro counties (A)	Resident population of column A
United States	147	528,300
Northeast	1	4,900
New England	0	0
Middle Atlantic	1	4,900
New York	1	4,900
Midwest	59	184,800
East North Central	4	25,500
Illinois	1	5,300
Indiana	1	5,400
Michigan	1	1,900
Wisconsin	1	12,900
West North Central	55	159,300
Kansas	4	12,600
Missouri	2	16,100
Nebraska	22	48,000
North Dakota	12	42,400
South Dakota	15	40,200
South	53	266,500
South Atlantic	21	118,200
Florida	2	14,200
Georgia	15	73,300
North Carolina	1	9,700
Virginia	3	21,000
South (continued):		
East South Central	9	63,600
Alabama	1	13,200
Kentucky	2	14,400
Mississippi	3	19,200
Tennessee	3	16,800
West South Central	23	84,700
Arkansas	1	8,200
Louisiana	1	24,500
Texas	21	52,000
West	34	72,100
Mountain	29	58,300
Colorado	6	11,600
Idaho	4	13,100
Montana	11	17,800
Nevada	2	3,200
New Mexico	2	5,900
Utah	4	6,700
Pacific	5	13,800
California	1	1,200
Oregon	3	5,000
Washington	1	7,600

[a] Includes physicians in patient care, research, administration, and teaching. Includes all active doctors of osteopathy (DOs) regardless of specialty.

[b] MD data as of Jan. 1, 1988. DO data as of 1987. Population as of 1987.

SOURCE: T.C. Ricketts, Rural Health Research Center, University of North Carolina, Chapel Hill, NC. Analysis of unpublished data (provided by the Health Resources and Services Administration) conducted under contract to the Office of Technology Assessment.

FPs in rural areas are much more likely than those in urban areas to provide complicated obstetric delivery services, services to high-risk patients, and cesarean sections (table 15-12) (*545*). Nonetheless, the majority of rural FPs do not handle complications, so they are heavily dependent on obstetricians for backup.

CNMs are registered nurses with additional training to provide obstetric and gynecological care to essentially normal newborns and women. As of 1990, nearly 4,000 CNMs had been certified by the American College of Nurse-Midwives and an estimated 60 percent were providing obstetric services[24] (see ch. 10 for a discussion of the supply and distribution of CNMs). Most CNMs are in urban areas and most are employed by hospitals, HMOs, or birth centers (44 percent) or by physicians (25 percent) (*342*). Nearly 90 percent of CNMs that deliver babies do so in hospitals (*342*), but practitioners in many States report medical staff bylaws that prohibit appointment of nonphysician care managers. (See ch. 11 for a discussion of State regulatory barriers that affect mid-level practitioners.)

The Impact of Medical Professional Liability Issues on Obstetric Provider Availability in Rural Areas—In some cases, the conditions of rural practice have contributed to the decline of rural obstetric providers—the lack of coverage for time off, limited consultation opportunities, and difficulties with referrals to larger hospitals (*336*). Increasingly, however, the high costs of premiums for medical malpractice coverage and fears of lawsuits have been cited as major factors contributing to the decline. A recent report of the Institute of Medicine (IOM) concluded that there has been a significant decline in the number of obstetric providers practic-

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[24] Estimates are based on a 1988 survey of 2,363 members of the American College of Nurse-Midwives. The survey response rate was 76 percent (342).

Table 15-12—Percentage of Family Physicians[a] Who Care for Obstetric Patients at Various Levels, by Metropolitan/Nonmetropolitan Area and Census Region, July 1988

Census region	Routine care	Complicated delivery	High risk	Cesarean sections
Total				
Metro	22.9	5.9	3.2	2.3
Nonmetro	43.1*	23.2*	15.3*	12.6*
New England				
Metro	17.1	4.3	2.9	2.1
Nonmetro	41.9*	10.5	5.8	2.3
Middle Atlantic				
Metro	11.9	1.3	0.0	0.0
Nonmetro	18.2	3.6	0.0	0.0
East North Central				
Metro	31.2	7.3	4.6	0.5
Nonmetro	60.9*	33.3*	24.1*	9.2*
West North Central				
Metro	48.6	14.4	7.5	4.8
Nonmetro	69.8*	42.9*	23.6*	19.8*
South Atlantic				
Metro	10.4	4.9	2.4	1.2
Nonmetro	15.0	5.0	2.0	0.0
East South Central				
Metro	8.5	1.4	0.7	0.7
Nonmetro	16.4*	9.4*	7.0*	6.3*
West South Central				
Metro	21.4	7.3	3.6	6.3
Nonmetro	39.7*	26.4*	23.1*	30.6*
Mountain				
Metro	21.0	5.9	1.6	1.6
Nonmetro	58.4*	28.5*	24.1*	18.2*
Pacific				
Metro	27.4	5.7	3.9	3.9
Nonmetro	44.9*	22.4*	12.2*	16.3*

*NOTE: Statistically significant at P = 0.25 using a standardized normal Z test for comparing proportions (a one-tailed test).

[a] Based on a survey of active members of the American Academy of Family Physicians.

SOURCE: G. Schmittling and C. Tsou, "Obstetric Privileges for Family Physicians: A National Study," Journal of Family Practice 29(2):179-184, 1989.

ing in rural areas since the early 1980s. Furthermore, a substantial number of providers are limiting the services provided to high-risk women because they fear being sued. Physicians are increasingly reporting a reduction in their Medicaid caseloads, at least in part because of professional liability concerns (*289*).

A number of States have instituted reforms in response to concerns over obstetric malpractice costs (box 15-B). Nevertheless, the IOM report concluded that the costs of litigating obstetrical malpractice claims have not decreased greatly. Their suggested interventions to curb the decline of obstetrical providers included (*289*):

- State alternatives to the tort system (e.g., no-fault compensation for certain impaired infants),
- federally sponsored demonstration projects and studies of proposed State legislation,

Box 15-B—Selected State Responses to Obstetric Shortages and Malpractice Insurance and Liability Issues

Arkansas—Established a grant program to increase access to nurse-midwifery services in medically underserved areas (*533a*).

Arizona—Subsidizes physicians who provide obstetric services in rural areas (*533a*).

Colorado—Limits total liability to $1,000,000 and noneconomic losses to $250,000, makes physicians not liable where birth injury results from genetic disorders or other unavoidable natural causes, and establishes a 3-year statute of limitations (*532*).

Florida—In 1988, enacted an injured-infants plan that includes no-fault compensation, voluntary arbitration systems, and immunity for physicians treating patients in emergency rooms (367). Established a grant program to increase access to nurse-midwifery services in medically underserved areas (*533a*).

Georgia—Makes loans to physicians who recently completed their medical education. Loans may be repaid through practice in rural areas. Priority will be given to physicians specializing in, and actively practicing, obstetrics (*428*).

Mississippi—Expanded the definition of "State employee" to include physicians providing services under a contract with the State so the physician avoids individual liability exposure (*38*)

Montana—Limits the immunity of providers who render birth-related services in emergency situations (*292*).

Nevada—In 1987, created a pretrial medicolegal screening panel in hopes of curbing the excessive cost of malpractice insurance. In 1989, Nevada malpractice premiums decreased 11 percent (*505*).

North Carolina—In 1988, funded a pilot program to compensate family physicians and obstetricians who agree to provide prenatal and obstetric care in counties which are underserved in respect to these services (*331*).

South Carolina—Expanded the definition of "State employee" to include physicians providing services that are paid for by a salary appropriated by a governmental entity, thereby avoiding individual liability exposure (*38*).

Texas—Assumes limited liability for malpractice claims against doctors who provided at least 10 percent charity care during the previous insurance policy year. Charity care includes services provided under the State's indigent care program, Medicaid, Maternal and Child Health block grant programs, and primary health and migrant health programs. Providers must still maintain malpractice insurance but eligible practitioners may qualify for a premium discount, in addition to added liability protection provided by the State (*292*).

Virginia—In 1987, enacted a no-fault compensation program for birth-related injuries (*367*).

Washington—Contracts with or directly employs qualified obstetric providers, then pays, through higher reimbursement, that portion of their malpractice premiums that represents the care they provided to eligible (indigent or underserved) pregnant women (*292*).

- a detailed, federally sponsored national database on malpractice claims that would include information on malpractice insurance rates, payouts, settlements, and claims,
- more systematic assessment of new obstetric and related technologies,
- extending the personal immunities offered by the Federal Tort Claims Act, or equivalent coverage, to all practitioners of obstetric care at Community and Migrant Health Centers (C/MHCs),
- State programs to indemnify or subsidize the medical professional liability premiums of obstetric providers who participate in Medicaid or otherwise provide care to low-income women, and
- expansion of the National Health Service Corps (NHSC).

FPs delivering obstetric services pay malpractice insurance rates that are two to three times higher than those of their counterparts who do not practice obstetrics (*348*). In some States, insurers are beginning to adjust physicians' malpractice insurance rates for the number of deliveries performed (*528*). Where such adjustments are not made, however, insurance premiums continue to be a greater burden for rural G/FPs and CNMs because these providers generally have fewer obstetric patients over whom to spread the cost. Physicians who provide backup for CNMs often have to pay additional malpractice insurance premiums (*29*).

Estimating the impact of malpractice concerns on the availability of rural obstetric providers is difficult because there are few national data available that distinguish rural from urban providers. Information about obstetric providers' responses to malpractice issues comes from two surveys: one conducted by the American College of Obstetricians and Gynecologists (ACOG) and one by the American Academy of Family Physicians (AAFP). In the most recent ACOG survey (1987), 12 percent of obstetrician/gynecologists reported that they no longer practiced obstetrics because of the risk of malpractice suits. An additional 27 percent reported decreasing the level of high-risk obstetric care, and 13 percent reported decreasing the number of deliveries they handled (*29*).[25] This survey did not distinguish urban from rural obstetricians.

According to a 1986 AAFP survey, the proportion of FPs giving up obstetrical practice is even higher than that observed among obstetricians. This survey showed that 23 percent of AAFP members who had ever provided obstetric care had stopped because of malpractice concerns (*12*). This development is a potentially serious threat to access to obstetric care in rural areas, because rural women are more dependent on FPs for their care. From a 1988 survey that distinguished rural from urban FPs, however, it appears that rural FPs are much more likely than urban FPs to provide obstetric services, especially to high-risk patients (see table 15-12) (*545*).[26] Among FPs that were not performing obstetrics, more urban than rural FPs reported that they did not practice obstetrics because it was "not desired" (59 *v.* 50 percent), while more rural than urban providers cited "liability costs prohibitive" (34 *v.* 25 percent) as a reason for not performing obstetrics (table 15-13). Based on the AAFP survey results, OTA estimates that there could be a significant (up to 42 percent) increase in the availability of FPs providing obstetric services in rural areas if there were a decline in premium costs.[27]

In a 1988 survey of C/MHC directors,[28] two-thirds (67 percent) of respondents indicated that the medical malpractice problem had affected either their ability to furnish obstetric services or their scope of services (278). Centers reported difficulties in recruiting and retaining staff and in establishing and maintaining contractual arrangements with providers. Many centers have relied on physicians available through the NHSC. The Federal Tort Claims Act formerly insured both commissioned officers of the NHSC and NHSC scholarship graduates who worked as civilian employees of the Public Health Service, but since 1984 most NHSC physicians placed in health centers have not been covered by the Act because they no longer receive their salaries directly from the NHSC. Consequently, health centers have had to provide malpractice coverage from Federal grant funds and other revenue sources. As malpractice insurance costs have increased, the magnitude of this burden has increased in tandem, reducing the centers' ability to provide care. Furthermore, with declining numbers of NHSC physicians available, centers' salary costs have increased in order to compete for physicians on the open market.

Forty-three percent of C/MHC representatives surveyed reported turning patients away because of staff shortages (*278*). Several centers reported that they had no one to whom they could refer the patients they could not serve, either because private providers would not take the patients or because there were no other locally available providers. Several centers also reported that they were forced to discontinue care of women at the time of delivery because the FPs or CNMs on staff were not permitted to perform deliveries[29] and could not identify community physicians to whom they could refer patients for delivery care. One center reported

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[25] These data represent responses to a survey of ACOG members. Fewer than one-half of those surveyed (48 percent) responded to the survey (*29*). An estimated 63 percent of obstetrician/gynecologists are members of ACOG (*125*).

[26] This survey included the responses of active members of the American Academy of Family Physicians. More than three-fourths (76.2 percent) of those surveyed responded. An estimated 66 percent of general and family practitioners are members of AAFP (*520*).

[27] This estimate assumes that the AAFP survey is applicable to all GP/FPs, and that those practitioners that stated that prohibitive liability costs prevented them from practicing obstetrics would indeed enter, or reenter obstetric practice if costs were reduced or eliminated. The AAFP survey did not specifically ask about fear of a malpractice suit as a deterrent to practice and even if malpractice insurance costs were reduced, some physicians may not enter or reenter obstetric practice because of such fears.

[28] At the time of the survey there were 546 Community and Migrant Health Centers. Fifty-eight of a sample of 139 centers (42 percent) responded to the survey (*278*).

[29] Center providers were prohibited from delivering babies either by their malpractice insurance policies or because local hospitals allowed deliveries only by obstetricians (*278*).

Table 15-13—Percentage of Active AAFP Members Who Perform or Do Not Perform Routine Obstetric Care in Their Hospital Practice, by Region and Location of Practice,[a] 1988

	Total number	Performed in hospital practice	Performed with consultation	Not performed percent/(number)	Reasons not performed among those not performing obstetrics: Not desired	Privileges denied	Liability costs prohibitive	No hospital department	No hospital practice	No reason given
Total	34,444	29.0	0.3	70.7 (24,353)	55.3	0.7	25.9	3.7	11.9	2.6
Metro	17,508	23.3	0.3	76.4 (13,381)	59.1	0.7	24.7	3.4	9.7	2.3
Nonmetro	9,079	43.4	0.2	56.4 (5,123)	50.3	0.4	32.8	4.7	9.4	2.4
Northeast[b]	5,233	14.7	0.4	84.9 (4,443)	61.0	0.8	18.9	5.2	11.1	3.0
Metro	2,980	13.1	0.5	86.4 (2,575)	65.9	0.6	16.6	4.7	9.1	3.1
Nonmetro	894	28.3	0.0	71.7 (641)	52.7	0.0	31.4	5.5	6.4	3.9
Midwest[b]	9,868	47.4	0.2	52.4 (5,174)	56.6	0.0	27.5	2.8	10.7	2.5
Metro	4,791	36.8	0.0	63.2 (3,028)	57.3	0.0	27.5	3.8	9.8	1.7
Nonmetro	3,154	66.0	0.0	34.1 (1,074)	51.0	0.0	33.8	1.9	11.0	2.4
South[b]	11,573	17.5	0.3	82.2 (9,509)	54.9	1.4	24.6	4.8	11.6	2.7
Metro	5,181	14.2	0.5	85.4 (4,423)	59.0	1.8	23.3	3.9	9.4	2.7
Nonmetro	3,515	23.5	0.3	76.3 (2,681)	51.0	0.8	29.3	6.9	10.2	1.9
West[b]	7,772	32.5	0.3	67.3 (5,228)	49.9	0.1	32.5	1.3	14.2	2.0
Metro	4,555	26.0	0.3	73.7 (3,356)	55.8	0.2	30.4	1.4	10.6	1.6
Nonmetro	1,516	51.7	0.4	47.9 (726)	44.6	0.0	45.9	0.0	6.8	2.9

[a] Responses shown are the weighted responses of 3,352 respondents. Responses were weighted to reflect the responses of active AAFP members. The survey question on obstetrics practice was not answered by 1.3 percent of respondents.

[b] Residence is unknown for 25.7 percent of Northeastern physicians, 19.5 percent of Midwestern physicians, 24.7 percent of Southern physicians, and 22.3 percent of Western physicians.

SOURCE: The American Academy of Family Physicians, tabulation prepared for OTA by Chris Robinson and Gordon Schmittling, 1989.

that it was forced to send all patients—nearly 700 a year—to the local hospital emergency room for deliveries (*278*).

Provider Participation in Medicaid—Many obstetric providers do not provide services to women who are uninsured or who have Medicaid coverage. Although States have expanded their Medicaid programs to cover more poor women, there is widespread concern that physicians will be not be available to care for newly eligible women (*347*). According to a 1987 survey of all 50 States, 89 percent of representatives of Maternal and Child Health block-grant-funded programs and 63 percent of Medicaid program representatives said that they were experiencing significant problems in Medicaid provider participation for maternity care. Low participation was found to be a particularly acute problem in rural areas: 35 of the 50 States reported problems in rural areas while only 3 said they had problems in suburban or urban areas (*347*).

In general, providers who do not serve Medicaid patients report that their major reasons are low reimbursement and concerns about malpractice suits and malpractice costs (*347*). In 1986, the average Medicaid fee was approximately 44 percent lower than the average national charge for total obstetric care ($1,437).[30] Many State agencies are trying to improve provider participation through a variety of mechanisms that include raising fees, using alternative providers (e.g., CNMs), providing case management, and initiating outreach and public relations activities aimed at providers (*347*).

Although provider participation in Medicaid seems to be a problem, evidence from provider surveys shows that physicians in smaller communities are more likely than other physicians to provide services to at least some Medicaid patients. An estimated 63 percent of obstetricians provide services to Medicaid patients, but 85 percent of obstetricians in communities with 50,000 or fewer residents provide obstetric services to this group compared with just over one-half (52 percent) in communities with over 500,000 residents (*28*).[31] Furthermore, obstetricians in smaller communities tend to have practices that include a higher proportion of Medicaid deliveries (*28*).[32]

Although it would seem that low physician participation might hamper access to care, a government study found that few women who had recently delivered a baby and were uninsured or had Medicaid coverage had had problems finding a health care provider to see them (*614*). According to the 1986-87 General Accounting Office (GAO) survey, rural uninsured or Medicaid-insured women were more likely to have had adequate prenatal care (46 percent)[33] than were women residing in large urban areas (29 percent) or other urban areas (42 percent) (table 15-14).[34] Furthermore, a higher proportion of uninsured or Medicaid-insured women in rural than urban areas reported no problems in receiving prenatal care (33 *v.* 25 percent) (table 15-15). In general, uninsured or Medicaid-insured women in all areas reported that not recognizing that they were pregnant, financial problems, and transportation problems posed the greatest barriers to obtaining care (table 15-15) (*614*). Less than 3 percent of the women surveyed reported the lack of "local doctors, midwives, or nurses" as a barrier to care, but women in rural areas were more than twice as likely as urban women to report the absence of a provider as a barrier (4.6 *v.* 2.0 percent) (*614*). Eight percent of uninsured and Medicaid-insured women reported that they "could not get a doctor, midwife, or nurse to see them," but this problem was not greater in rural than in urban areas (table 15-15). The GAO investigators conclude that increasing reimbursement might expand the choice of providers available to Medicaid-eligible women, but it would not improve access to prenatal care as much as using limited resources to expand Medicaid eligibility (*614*). GAO's findings may not be applicable to all rural areas, however, because the study included women delivering in only 13 rural hospitals. Rural commu-

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[30] As of 1986, Medicaid paid less than half of the prevailing community charges for obstetric care in at least 23 States. In Florida, Medicaid paid only 17.5 percent of the prevailing community charge whereas in Nebraska, Medicaid paid 76.1 percent of the community charge (*347*).

[31] A 1989 study of Alabama obstetric providers showed that rural towns with higher proportions of physicians accepting Medicaid cases were more likely to retain obstetric providers than rural towns with relatively few such providers (*102a*).

[32] A 1989 survey of pediatricians showed that overall participation in the Medicaid program has declined since 1983, but that pediatricians practicing in rural areas are more likely than urban pediatricians to participate and to have unrestricted participation in the Medicaid program (*743*).

[33] Adequate prenatal care was defined as care beginning in the first trimester and including 9 or more visits for a pregnancy of 36 or more weeks (*614*).

[34] Women were selected from 32 communities in 8 States to provide a mix of rural, medium-sized urban, and large metro areas in different parts of the country (*614*).

Table 15-14—Adequacy of Prenatal Care[a] for Medicaid Recipients and Uninsured Women, by Area of Residence, 1986-87

	Total (1,157)	Inadequate[b]		Intermediate[c]		Adequate[d]	
		Number	Percent	Number	Percent	Number	Percent
Large urban[e]	507	128	25.25	233	45.96	146	28.80
Medicaid	197	42	21.32	94	47.72	61	30.96
Uninsured	310	86	27.74	139	44.84	85	27.42
Other urban	348	66	18.97	135	38.79	147	42.24
Medicaid	198	30	15.15	81	40.91	87	43.94
Uninsured	150	36	24.00	54	36.00	60	40.00
Rural	302	36	11.92	128	42.38	138	45.70
Medicaid	210	21	10.00	89	42.38	100	47.62
Uninsured	92	15	16.30	39	42.39	38	41.30

[a] The Institute of Medicine prenatal care index (developed by D. Kessner) is used to classify the adequacy of prenatal care.

[b] Care beginning in third trimester or including 4 or fewer visits for a pregnancy of 34 or more weeks.

[c] Care beginning in the second trimester or including 5 to 8 visits for a pregnancy of 36 or more weeks.

[d] Care beginning in the first trimester and including 9 or more visits for a pregnancy of 36 or more weeks.

[e] Women delivering in 39 hospitals in 32 communities in 8 States were interviewed. Large urban includes large metro areas, other urban includes other metro areas.

SOURCE: U.S. Congress, General Accounting Office, Prenatal Care: Medicaid Recipients and Uninsured Women Obtain Insufficient Care, HRD-87-137 (Washington, DC: U.S. Government Printing Office, 1987).

nities without hospitals or other facilities are likely to have greater access barriers to obstetric services.

Inability To Pay for Care

In 1989, the average charge for a vaginal delivery in the United States was $4,334 (including physician and hospital charges), but the average charge was about 10 percent lower in rural than in urban areas (*9,392*).[35] Women in rural areas, particularly poor women, are more likely to have problems financing maternity services because they lack insurance coverage or their insurance does not cover maternity services.

Most women in both urban and rural areas (77 percent) have private insurance and a comparable proportion of rural and urban women of reproductive age are uninsured (18 percent *v.* 16 percent in 1985) (*9*). Rural women, however, have more private insurance coverage through individual policies that are less likely to cover maternity care (table 15-16) (*9*).[36] Consequently, rural women are more likely than urban women to be responsible for paying for their deliveries themselves. In 1982, 19 percent of deliveries in rural areas, compared with 13 percent of urban deliveries, were classified as "self/family-pay" or "no payment." Nationally, about 6 percent of total hospital charges are not paid and maternity services account for about 40 percent of this uncompensated care (*392*). In 1982, rural deliveries accounted for nearly one-half (46 percent) of all uncompensated deliveries, yet rural deliveries represent only 23 percent of all deliveries (*9*). Some of the difficulties in paying for maternity care can be traced to the fact that the rural poor are less likely than the urban poor to have Medicaid coverage (*530*) (see ch. 2).

Medicaid—As of 1984, 17 percent of all delivery charges were paid by Medicaid (*9*). Between 1975 and 1990, the percentage of poor persons covered by Medicaid nationwide dropped from 63 to 50, but subsequent congressional changes have reversed the trend for pregnant women and infants (*292*). As of April 1990, all States must extend Medicaid eligibility to all pregnant women and children up to age 6 whose family incomes are at or below 133 percent of the Federal poverty level[37] (Public Law 101-290).

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[35] The average charge for a cesarean delivery was $7,633 (*9*). The cost to deliver and care for a premature baby with major complications can be much higher.

[36] Insurance policies that are through employers of 15 or fewer employees or that are not employment-related are not required to cover maternity care. Nationally, approximately 9 percent of reproductive-age women (about 5 million women) have private insurance policies that do not cover maternity care (*8*).

[37] The Federal poverty level in 1990 is $10,560 for a family of three (*419*).

Table 15-15—Barriers to Earlier or More Frequent Prenatal Care Cited by Medicaid Recipients and Uninsured Women Who Had Recently Delivered, 1986-87

	All women				Women with inadequate prenatal care[a]			
	Total (1,157)	Large urban (507)	Other urban (348)	Rural (302)	Total (726)	Large urban (361)	Other urban (201)	Rural (164)
Barriers								
Logistical/access to health services:								
Did not have anyone to take care of other children	8.82	9.86	8.33	7.62	11.71	6.47	8.46	12.80
Could not miss work or school	5.53	7.10	2.01	6.95	6.75	8.03	2.99	8.54
Did not have a way to get to clinic or doctor's office	16.16	13.02	17.53	19.87	20.25	16.07	21.89	28.05
No local doctors, midwives, or nurses	2.68	1.97	2.01	4.64	3.86	2.49	3.48	7.32
Could not get a doctor, midwife, or nurse to see them	7.87	6.31	9.77	8.28	9.50	8.03	10.95	10.98
Did not know where to go for care	8.90	11.83	4.02	9.60	11.16	14.13	5.97	10.98
Felt the wait in the doctor's office or clinic was too long	8.64	10.85	7.18	6.62	11.57	13.02	10.45	9.76
Felt the office hours were not convenient	5.19	7.30	3.74	3.31	6.34	7.48	4.98	5.49
Could not get an appointment earlier in pregnancy	11.58	13.02	11.78	8.94	13.50	14.40	14.43	10.37
Cannot speak English well and could not find anyone who spoke their language	1.04	1.97	0.00	0.66	1.24	1.94	0.0	1.22
Thought they might have problems with immigration people	1.73	3.94	0.00	0.00	2.20	4.43	0.0	0.0
Women's attitudes, beliefs, and experiences:								
Did not think it was important to see a doctor, nurse, or another medical person earlier or more often	6.83	8.48	5.45	5.63	8.68	10.25	6.97	7.32
Did not want to think about being pregnant	10.72	11.05	9.77	11.26	13.64	12.47	15.42	14.02
Had too many other problems to worry about getting care	8.30	9.86	7.47	6.62	11.29	11.91	11.44	9.76
Did not know that they were pregnant	24.63	24.85	22.41	26.82	28.37	27.15	29.35	29.89
Not sure they wanted to have the baby so didn't go to see a doctor, midwife, or nurse	7.09	9.47	4.60	5.96	8.82	11.08	6.47	6.71

Table 15-15—Barriers to Earlier or More Frequent Prenatal Care Cited by Medicaid Recipients and Uninsured Women Who Had Recently Delivered, 1986-87—Continued

	All women				Women with inadequate prenatal care [a]			
	Total (1,157)	Large urban (507)	Other urban (348)	Rural (302)	Total (726)	Large urban (361)	Other urban (201)	Rural (164)
Women's attitudes, beliefs, and experiences:								
Knew what to do since they had been pregnant before	12.45	15.38	10.34	9.93	16.25	18.28	15.92	12.20
Were a little afraid of medical tests and examinations	8.38	10.85	6.90	5.96	10.19	12.19	8.46	7.93
Were afraid to find out they were pregnant	8.47	7.10	8.62	10.60	10.19	8.31	12.44	11.59
Did not want to tell baby's father, parents, or other family members	7.69	4.73	8.33	11.92	10.33	5.82	13.43	16.46
Did not like the doctor's or nurse's attitudes	3.80	4.14	2.30	4.97	5.51	5.26	3.48	8.54
Financing								
Did not have enough money to pay for visits	22.39	25.64	16.09	24.17	28.37	31.02	21.89	30.49
Not eligible for Medicaid	4.93	4.93	4.60	5.30	5.37	5.26	5.47	5.49
Had problems with Medicaid	6.83	7.10	7.47	5.63	8.82	8.59	9.45	8.54
Other	4.41	5.33	4.60	2.65	5.23	5.26	5.47	4.88
No Problem	29.39	24.85	33.05	32.78	17.63	16.34	18.41	19.51

[a] Care beginning in third trimester _or_ including four or fewer visits for a pregnancy of 34 or more weeks. Women delivering in 39 hospitals in 32 communities in 8 States were interviewed.

SOURCE: U.S. Congress, General Accounting Office, _Prenatal Care: Medicaid Recipients and Uninsured Women Obtain Insufficient Care_, Report to the Chairman, Subcommittee on Human Resources and Intergovernmental Relations, Committee on Government Operations, House of Representatives, U.S. Congress, HRD-87-137 (Washington, DC: U.S. Government Printing Office, 1987).

Table 15-16—Insurance Coverage of Women Aged 15 to 44 Years, by Residence and Marital Status, 1985

Residential status/ marital status	Group	Individual	Medicaid	Other government	None	Number of women in sample (1,000s)
All women	67%	10%	9%	4%	17%	56,152
Metro	68	9	9	3	16	41,610
Nonmetro	65	12	8	4	18	14,543
Married women	78	10	4	5	11	29,241
Metro	79	9	3	5	10	20,789
Nonmetro	74	12	4	4	14	8,452
Unmarried women	55	10	15	3	23	26,912
Metro	56	10	15	2	23	20,821
Nonmetro	52	12	14	3	25	6,092

NOTE: Percentages do not add up to 100 because women may have insurance from more than one source.

SOURCE: Alan Guttmacher Institute, The Financing of Maternity Care in the United States (New York, NY: 1987), p. 379.

As of January 1990, 4 States had extended Medicaid coverage of these groups to 150 percent of the Federal poverty level, and 15 States had extended coverage to 185 percent, the fullest extent permitted by the Federal Government[38] (figure 15-1) (see ch. 3, table 3-3) (*419*). States categorized as "rural"[39] are less likely than "urban" States (30 v. 46 percent of States) to have opted to extend coverage beyond the level required by law.

Several States have streamlined the Medicaid application and enrollment process, making it easier for pregnant women to become eligible for coverage quickly. Most States, for example, no longer review pregnant womens' assets when determining eligibility, but more "rural" than "urban" States review assets (19 *v.* 8 percent) (table 15-17). Asset restrictions can result in exclusion from Medicaid coverage of poor rural families that have small farms, work tools, or a car or truck (*277*).

"Rural" States are somewhat more likely than "urban" States to offer continuous (85 *v.* 75 percent of States) and presumptive eligibility (52 *v.* 46 percent of States) (table 15-17). States with continuous eligibility do not require a women to redetermine her eligibility during or shortly after her pregnancy. Continuous Medicaid coverage is important for rural families, who may have seasonal, fluctuating income levels that could otherwise periodically make them ineligible for benefits (*277*). Presumptive eligibility allows publicly funded clinical providers (e.g., C/MHCs) to make temporary Medicaid eligibility determinations for pregnant women and provide services until they are formally enrolled in the program. This option helps to ensure that pregnant women, who in rural areas may be far from the Medicaid application site, are cared for before and during the application process.

Placing Medicaid eligibility determination workers at public health clinics (in some areas on a circuit riding basis) or allowing mail-in applications would probably facilitate Medicaid enrollment in rural areas (*277*). Rural States, however, have been less likely than urban States to "outstation" eligibility workers (26 *v.* 42 percent) to hospitals, local health departments, prenatal care clinics, and C/MHCs (table 15-17).

Other Federal Sources of Services to Low-income Women—In addition to the Medicaid program, several Federal Government programs are designed to increase access to maternal and infant care for poor and disadvantaged populations. Three of these are described below.

The Maternal and Child Health (MCH) block grant provides money to States to provide maternal and child health care to low-income, underserved pregnant women, infants, and children (see ch. 3). In 1987, $395 million was appropriated to the States (*496*), which used a portion of the money for free or subsidized prenatal and well-child care in public

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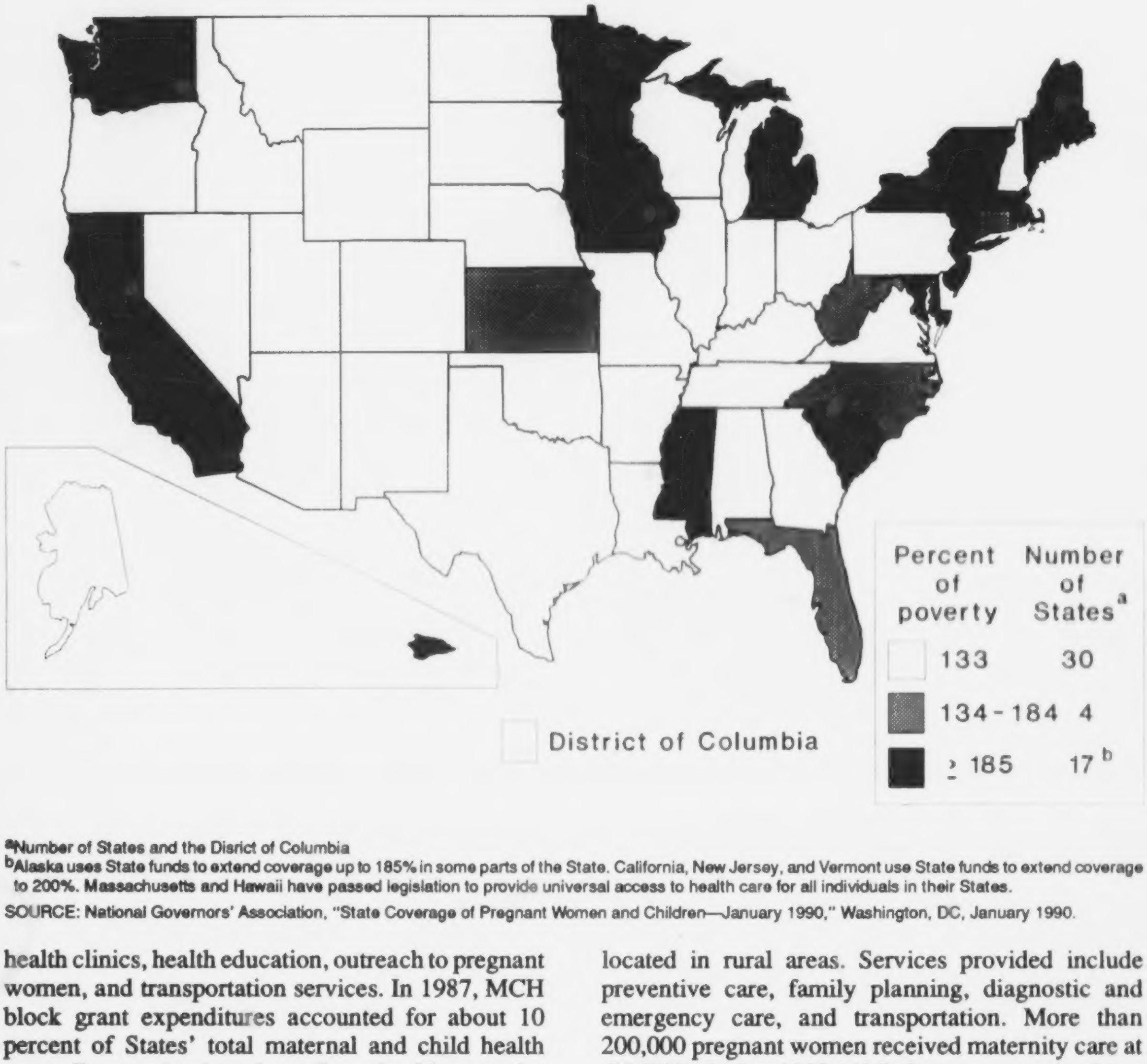
[38] Several States have bolstered Medicaid expansions by enacting State-funded programs for pregnant women and children (*419*).

[39] The 27 States that ranked in the top 15 for percent of population living in nonmetro areas, or in the top 15 for numbers of nonmetro residents, were categorized here as rural. The remaining States and the District of Columbia were categorized as urban (see ch. 2, table 2-2).

Figure 15-1—Medicaid Coverage of Pregnant Women and Infants, April 1990



[a] Number of States and the Disrict of Columbia

[b] Alaska uses State funds to extend coverage up to 185% in some parts of the State. California, New Jersey, and Vermont use State funds to extend coverage to 200%. Massachusetts and Hawaii have passed legislation to provide universal access to health care for all individuals in their States.

SOURCE: National Governors' Association, "State Coverage of Pregnant Women and Children—January 1990," Washington, DC, January 1990.

health clinics, health education, outreach to pregnant women, and transportation services. In 1987, MCH block grant expenditures accounted for about 10 percent of States' total maternal and child health expenditures. At that time, State health agencies used about one-third (31 percent) of MCH block grant funds—about $121 million—to support local health departments (*496*).

Community and Migrant Health Centers provide primary health care services, including maternity services, in medically underserved areas (see chs. 3 and 5). Sixty-one percent (319) of C/MHCs are located in rural areas. Services provided include preventive care, family planning, diagnostic and emergency care, and transportation. More than 200,000 pregnant women received maternity care at C/MHCs during 1988 (*413*). In many communities, C/MHCs are the sole source of comprehensive maternity and infant health care.[40]

In 1988, and again in 1989, C/MHCs received $20 million in additional funding[41] to improve and strengthen their capacity to serve pregnant women and infants. The funding was to be used to enhance the ability of C/MHCs to:

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[40] One-fifth of women receive care from a public provider (e.g., a hospital outpatient department, a C/MHC, or a local health department), while the remainder receive prenatal care in private physicians' offices (*289*).

[41] The additional funding came through DHHS' infant mortality initiative.

Table 15-17—Strategies To Streamline Medicaid Eligibility, January 1990

	OBRA 1986 Options[a]			Other State initiatives		
States	Dropped assets test	Continuous eligibility	Presumptive eligibility	Outstanding eligibility workers	Shortened application	Expedited eligibility[b]
Alabama	X	X	X	X	X	
Alaska	X	X				X
Arizona	X	X				
Arkansas	X	X	X	X		
California				X[c]		
Colorado			X			
Connecticut	X	X				
Delaware	X	X		X	X	X
District of Columbia	X	X	X[c]			
Florida	X	X	X	X	X	
Georgia	X	X			X	X
Hawaii	X	X	X			
Idaho	X	X	X			
Illinois		X	X			
Indiana	X	X	X			
Iowa		X	X			
Kansas	X					X
Kentucky	X	X		X	X	
Louisiana	X	X	X	X	X	
Maine	X	X	X			
Maryland	X	X	X		X	
Massachusetts	X	X	X		X	
Michigan	X	X			X	
Minnesota	X	X			X	X
Mississippi	X	X		X		
Missouri				X		
Montana	X		X[c]			
Nebraska	X	X	X			
Nevada	X			X[c]		
New Hampshire	X					
New Jersey	X	X	X	X[c]		
New Mexico	X	X	X		X	
New York	X	X	X			
North Carolina	X	X	X	X		
North Dakota						
Ohio	X	X				
Oklahoma	X	X				
Oregon	X	X			X	X
Pennsylvania	X		X			
Rhode Island	X					
South Carolina	X	X		X	X	
South Dakota	X	X			X	
Tennessee	X	X	X	X		
Texas		X	X	X	X	
Utah	X	X	X	X		
Vermont	X	X		X	X	X
Virginia	X	X			X	
Washington	X	X			X	
West Virginia	X	X			X	X
Wisconsin	X	X	X			X
Wyoming	X	X				
Total	44	41	25	17	19	9

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[a] Options States may pursue that were introduced by the Omnibus Budget Reconciliation Act of 1986 (see text).

[b] Expedited eligibility is the process whereby States give priority in the Medicaid determination process to applicants who are pregnant.

[c] Future implementation date.

SOURCE: National Governors' Association, "State Coverage of Pregnant Women and Children-January 1990," Washington, DC, January 1990.

- provide comprehensive case-managed perinatal ambulatory care services,
- enrich the services of C/MHCs through addition of staff for outreach, health care, and nutrition education,
- develop or expand service delivery systems for women and infants, including contractual arrangements with community obstetricians to serve patients at health centers that do not have their own obstetrical staff and formal referral arrangements with local and regional hospitals, and
- better coordinate services between C/MHCs and other local public and private providers of health and health-related services (*627a*).

The infant mortality initiative funds were to be targeted to areas with high or increasing infant mortality rates. In 1988, however, this funding was sufficient to place projects in only one-third of health centers (206 centers), and many grantees did not receive enough to carry out necessary activities (*412*).

The Supplemental Food Program for Women, Infants, and Children (WIC) provides nutrition education and supplemental foods, such as infant formula, milk, eggs, and cereals, to low-income pregnant or nursing women, infants, and young children who are at "nutritional risk."[42] In 1988, 65 percent of WIC service sites were located in rural areas[43] and 40 percent of WIC participants were rural residents (*730*). In 1987, $1.6 billion in Federal funds were used for the WIC program, but only 53 percent of pregnant women, infants, and children with incomes below the poverty level received WIC benefits (*496,569*).

Loss of Hospitals and Hospital-based Obstetric Care

In 1987 almost all deliveries (over 98 percent) in both urban and rural areas occurred in hospitals (*650*). Pregnant women need to be able to reach a hospital with delivery services within a relatively short period from onset of labor, but there are some reports that women in rural areas are traveling great distances to deliver their babies because local services are unavailable (*348*). In Southeastern Missouri, for example, some high-risk pregnant women have to travel over 250 miles to reach a university hospital for their deliveries; in Texas, some pregnant women are sent by ambulance to deliver their babies in hospitals 150 miles away (*348*).

When rural hospitals close, ready access to delivery services diminishes. However, available evidence suggests that few hospitals that have closed were the sole source of care in rural communities (*252*) (see ch. 5). As of 1987, many more rural than urban community hospitals with fewer than 300 beds provided delivery services (85 v. 64 percent) (table 15-18). Smaller hospitals in rural areas are much more likely than comparable urban hospitals to offer delivery services. For example, of hospitals with fewer than 25 beds, less than one-third (29 percent) of the urban hospitals but more than three fourths (77 percent) of rural hospitals report deliveries (table 15-18). Of hospitals that perform deliveries, rural hospitals have fewer births per hospital than do urban hospitals of comparable size. In hospitals with 100 to 199 beds, for example, there are on the average 451 births per rural hospital, compared with 790 in urban hospitals (table 15-19).

Evidence suggests that many patients are migrating from rural areas to deliver their babies in more distant urban hospitals:

- A 1985 national health care consumer survey showed that almost one-half (47 percent) of rural residents were going to other areas for specialized care, such as women's services (*303*).
- In the North Central States between 1980 and 1987, there was a 20 percent decline in rural births per hospital and a 5 percent increase in births per hospital in urban hospitals (*577*).[44]
- In 1988, 50 percent of pregnant women residing in rural Alabama did not deliver at the nearest rural hospital providing obstetric services. Here, women traveled to deliver an average of 23 miles; over one-third went to hospitals in metro areas (*102b*).

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[42] Nutritional risk includes a history of poor pregnancy outcomes, iron-deficiency anemia, and inadequate dietary patterns.

[43] Areas with a population of fewer than 25,000 were defined as rural.

[44] Whether this shift occurred because of a lack of availability of delivery services, because high-risk pregnancies were increasingly being referred to urban centers, or because patients chose to deliver in urban areas is unknown. Births represented 10 percent of rural hospital admissions in 1987 and so the shift of births to urban areas could jeopardize the financial stability of rural hospitals (*577*).

Table 15-18—Proportion of Community Hospitals[a] Reporting In-Hospital Births,[b] by Hospital Bed Size and Location, 1987

Bed size	Metro		Nonmetro	
	Percent	(Total number of hospitals in bedsize category)	Percent	(Total number of hospitals in bedsize category)
Total hospitals	64.3	(1,957)	85.4	(2,584)
6-24	29.0	(31)	77.0	(200)
25-49	54.5	(143)	81.5	(817)
50-99	57.4	(427)	86.0	(893)
100-199	63.9	(756)	92.0	(539)
200-299	74.0	(600)	91.1	(135)

[a] Community hospitals, defined here as short-stay, non-Federal, nonspecialty hospitals (see app. C).

[b] Hospitals reporting births are those reporting at least one birth.

SOURCE: Office of Technology Assessment, 1990. Data from the American Hospital Association's 1987 Annual Survey of Hospitals.

Table 15-19—Average Number of Deliveries in Metropolitan and Nonmetropolitan Community Hospitals,[a] by Bed Size, 1987[b]

Bed size	Average deliveries per hospital			
	Metro		Nonmetro	
	Average deliveries	(Number of hospitals)	Average deliveries	(Number of hospitals)
Total hospitals	831	(1,259)	257	(2,207)
6-24	137	(9)	46	(154)
25-49	183	(78)	96	(666)
50-99	367	(245)	223	(768)
100-199	790	(483)	451	(496)
200-299	1,261	(444)	818	(123)

[a] Community hospitals, defined here as short-stay, non-Federal, nonspecialty hospitals.

[b] Analysis is limited to those hospitals with fewer than 300 beds and reporting at least 1 birth.

SOURCE: Office of Technlógy Assessment, 1990. Data from the American Hospital Association's 1987 Annual Survey of Hospitals.

- In 1986, one-third or more of obstetric patients in the service area of 25 of Washington's 33 rural hospitals[45] were having their babies in a hospital outside of their community. In some cases, patient outmigration occurred because a community hospital had stopped offering delivery services, but 28 of 33 hospitals were still offering obstetric services at the end of the study period (*433*).

Some reports link a decline in the number of physicians available to deliver babies to the closure of hospital obstetric units (*336,591*). It is difficult to determine whether the precipitating factor was that physicians stopped delivering babies or that patients left the local hospital to deliver elsewhere. In one case study, for example, nearly one-half (45 percent) of women who resided in a rural hospital service area were driving over 50 miles to deliver even though the local hospital had physicians on staff. Women using the local hospital were more likely to be under 18 years old, unmarried, and not a high school graduate than women traveling outside of the area for care (*591*). That the number of deliveries per available physician declined before the physicians themselves began to drop obstetrics suggests that patient migration and a subsequently greater proportion of high-risk patients in their practices may have prompted some local physicians to drop the service (*591*).[46] In rural Alabama, evidence suggests that rural obstetric units close because women stop using

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[45] Rural hospitals were defined as all acute-care, inpatient facilities of fewer than 50 beds and located more than 15 miles from a city of 30,000 population or greater (*433*).

[46] According to the case study, the physicians providing most of the care wanted to continue to provide obstetric services but could not afford the malpractice insurance (*591*).

Table 15-20—Mothers With Ultrasound and Electronic Fetal Monitoring During Pregnancy or Labor, 1980

	Ultrasound during[a] pregnancy[b]			**Electronic fetal monitoring during labor[c]**		
	Race			Race		
Residence	All races	White	Black	All races	White	Black
All locations......	29.3	29.1	30.6	47.2	47.1	47.6
Metro................	32.0	31.6	34.9	51.8	51.1	54.7
South.............	31.1	31.7	29.8	50.4	49.6	53.4
Other regions.....	32.4	31.6	38.6	52.3	51.6	55.6
Nonmetro............	24.2	24.5	19.0	38.8	40.2	29.3
South.............	22.3	23.1	18.5	37.9	40.4	29.1
Other regions.....	25.6	25.4	-- --	39.4	40.1	-- --

[a] Women with at least one ultrasound during pregnancy.

[b] Based on 5,343 births included in the National Natality Survey.

[c] Based on 7,504 births included in the National Natality Survey.

SOURCE: J.C. Kleinman, M. Cooke, S. Machlin et al., "Variation in Use of Obstetric Technology," Health, U.S. 1983 (PHS) 84-1232 (Bethesda, MD: December 1983).

them. Here, large numbers of women migrated from rural hospitals long before they stopped providing obstetric services (*102b*).

In contrast, a 40-bed hospital in Nevada progressed from providing only 7 to 73 percent of the county's deliveries through some deliberate steps aimed at winning back obstetric patients after a period of patient outmigration to urban hospitals (*505*). These steps included:

- attracting and organizing necessary personnel and implementing a team approach with obstetric morbidity and mortality conferences,
- providing equipment such as ultrasound machines and fetal monitors to improve care quality, and
- publicizing the availability of obstetric services.

Some women may choose to obtain prenatal care and deliver in more distant hospitals because of greater access to medical technologies. In 1980, pregnant women in rural areas were less likely than urban women to receive ultrasound or electronic fetal monitoring (table 15-20). Urban/rural differences were especially great for black women (*322*).

Communications technology is making it easier for rural providers to offer obstetric monitoring to their patients. Facsimile machines, for example, are used by some rural practitioners to transmit fetal monitoring strips to perinatologists in a distant center for interpretation. If a problem is detected, a helicopter and support team are dispatched to transfer the mother to a regional center (*132,259*).

Access to Regional Systems of Perinatal Care

In the aggregate, events that may require specialized care occur relatively frequently. Twelve percent of women have at least one major complication of pregnancy, 11 percent of women have a major complication of labor, nearly 20 percent of deliveries occur by cesarean section (*8*),[47] and about 4 to 6 percent of newborns require neonatal intensive care (*619*). For individual rural practitioners with small obstetric practices, however, these occurrences are relatively infrequent. To assure access to care when complications arise, regional systems of perinatal[48] care have been organized in some areas so that low-risk patients are cared for by primary care practitioners in community hospitals and clinics while high-risk patients are selectively triaged (and sometimes transported) to providers and facilities equipped to provide specialized care. These perinatal centers are usually located in urban areas (*549*). In 1987, for example, fewer than 2 percent of rural hospitals and 6 percent of urban hospitals with fewer than 300 beds had a neonatal intensive care unit (NICU) (table 15-21). There are relatively fewer pediatricians in rural than urban areas to care for seriously ill newborns (table 15-10).

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[47] In 1980, cesarean section births occurred slightly more frequently in urban (18 percent) than rural areas (16 percent) (9).

[48] Perinatal refers to the period shortly before and after birth; it is variously defined as beginning with the completion of the 20th to 28th week of gestation and ending 7 to 28 days after birth.

Table 15-21—Proportion of Community Hospitals[a] With a Neonatal Intensive Care Unit, by Hospital Bed Size and Location, 1987

	Metro		Nonmetro	
Bed size	Percent	(Total number of hospitals in bedsize category)	Percent	(Total number of hospitals in bedsize category)
Total hospitals	6.4	(1,957)	1.7	(2,584)
6-24	0.0	(31)	0.0	(200)
25-49	0.0	(143)	0.0	(817)
50-99	.9	(427)	0.7	(893)
100-199	4.6	(756)	4.3	(539)
200-299	14.3	(600)	11.9	(135)

[a] Community hospitals, defined here as short-stay, non-Federal, nonspecialty hospitals. Analysis is limited to hospitals with fewer than 300 beds.

SOURCE: Office of Technology Assessment, 1990. Data from the American Hospital Association's 1987 Annual Survey of Hospitals.

In many areas, regionalization appears to be concentrating high-risk infants in facilities equipped to care for them (*249,527*). When physicians working in community hospitals refer a large number of high-risk obstetric patients, the need to transport sick neonates from these hospitals is lower. In Iowa, for example, 78 percent of very-low-birthweight births occur in specialized hospitals (*249*).[49] In other areas, a regionalized approach to perinatal care has not yet fully evolved. In upstate New York, for example, many high-risk babies are still being delivered in small rural hospitals (*155*). A 1988 study found that regionalized perinatal care systems have generally deteriorated over the last several years. The study indicated that in some areas competition has replaced cooperation among hospitals providing perinatal care (*425*). Furthermore, many community hospitals are upgrading their neonatal programs, regardless of whether the number of high-risk infants is sufficient to maintain either professional skill levels or program economic viability (*248,425*).

There will always be a number of presumed "low-risk" deliveries that have unanticipated complications, so rural hospitals that offer obstetric services must maintain the capability to perform emergency procedures such as cesarean sections, which involve surgical, anesthetic, and postoperative capability (*402*). Alternatively, rural hospitals can utilize transfer agreements and rapid transportation systems to facilitate access to specialized obstetric units and NICUs.

MODEL RURAL MATERNAL AND INFANT SERVICE PROGRAMS

Several components of health care programs have been identified as contributing to declines in infant mortality in rural areas:[50]

- placement of publicly supported obstetric providers in the community (e.g., physicians, CNMs, or nurse practitioners),
- the availability of obstetricians either locally or on a consultant basis,
- the provision of obstetric services for low-risk patients by public health nurses with support from local physicians,
- the presence of perinatal transport systems and training,
- high WIC utilization,
- implementation of tracking and management systems,
- program flexibility and a lack of strict program boundaries,
- interagency coordination and cooperation, and
- community concern and leadership (*465*).

Demonstration programs funded privately and through the Federal Government have attempted to redress problems of access to care and high infant mortality in rural areas. In addition, many States have initiated innovative programs to improve perinatal outcomes.

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[49] Specialized hospitals include level two and three centers. Before the regionalized system was developed, these infants were just as likely to be born in a level one hospital where resources needed to care for these infants may not have been available (*249*).

[50] The Bureau of Health Care Delivery and Assistance funded a study to identify factors that have contributed to decreasing infant mortality rates in rural counties over the past 15 years. The National Rural Health Association selected four communities to study in Louisiana, Texas, Montana, and South Carolina with populations between 10,000 and 35,000 (*465*).

The Rural Infant Care Program,[51] funded from 1980 to 1984 by the Robert Wood Johnson Foundation, was designed to give poor rural families access to regional networks of perinatal care by linking their local public health units, physicians, and hospitals with tertiary medical centers (*517*).[52] An evaluation of the program showed that infant mortality declined in the target populations and among high-risk groups (*223*). Among the program components that were included were:

- screening for high-risk pregnancies and providing followup to those identified in special clinics;
- implementing health education and nutrition programs;
- establishing neonatal hotlines so that local providers could obtain medical consultation;
- implementing a system for transporting high-risk women in labor and newborn infants to hospitals with NICUs;
- using CNMs, nurse educators, and pediatric nurse practitioners to supplement physician care;
- conducting in-service education programs for local providers; and
- training and employing lay outreach workers for patient recruitment, followup, and transportation to the clinic or hospital for care.

Federal programs implemented in the mid-1970s contributed to declines in infant mortality by facilitating the development and use of perinatal centers (*215*). From 1976 to 1979, 32 States plus the District of Columbia and Puerto Rico were funded through The Improved Pregnancy Outcome (IPO) Program[53] to undertake the following activities (*215*):

- perform needs assessments for the provision of perinatal services;
- write State perinatal health care plans;
- define levels of perinatal care;
- educate providers of health care;
- establish systems for perinatal data analysis, including the matching of birth and death certificates;
- monitor and establish mechanisms for improving quality of care for pregnant women and newborns, including the creation of maternal and perinatal mortality committees; and
- organize the flow of patients so that those with the highest risk of a poor outcome could be cared for in appropriate perinatal centers.

Through the Federal Improved Child Health Program (ICHP), 8 States were awarded 5-year grants to assist targeted counties in improving infant mortality (*579*). Evaluations of some of the projects located in rural areas show that they were effective in increasing prenatal care use but unsuccessful in changing the incidence of low-birthweight (*468*, *579*).

The MCH block grant program funds service demonstration projects, State staff development programs, and other initiatives to help States develop their MCH programs (*66*). In 1989, for example, 24 ongoing projects specifically related to rural maternal and infant health care were funded through the grant program (*687*). Among the funded projects were those supporting health promotion in rural black communities and consultation visits to high-risk pregnant women in rural clinics by a team of perinatal specialists (*687*).

In some rural areas, adverse overall economic conditions may overshadow the effects of special health care interventions. A program implemented in an impoverished rural area in Appalachia[54] failed to improve neonatal mortality despite the operation of free hospital- and community-based clinics and the provision of home health visits by outreach workers (*515*). Despite the Indian Health Service's regionalized system of perinatal care, which includes nurse-midwives performing low-risk deliveries and trained indigenous workers providing home-based care, infant mortality is 1½ times higher among Native Americans than among all U.S. residents (*616*).

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[51] The Rural Infant Care Program is also briefly described in app. E.

[52] Ten medical schools in nine States were funded (*517*).

[53] States and not the Federal Government selected locations of services to be provided under the grant (*215*).

[54] The Family Health Services program in Eastern Kentucky was funded by the Robert Wood Johnson Foundation and operated from 1974 to 1978 (*515*).

Innovative programs may be difficult to administer in rural areas without a flexible approach. In California, for example, rural implementation of the Comprehensive Perinatal Service Program,[55] which provides risk assessments, prenatal services, case coordination, and perinatal and parenting education, has been handicapped by strict program requirements for support staff. Several rural counties do not have the trained health educators, social workers, and registered dieticians that are required to administer the program (*133*).

SUMMARY AND CONCLUSIONS

Fetal, infant, and maternal mortality are disproportionately high in rural areas. The fact that rural women are less likely than urban women to receive early prenatal care probably contributes to the relatively high perinatal death ratios in rural areas. Sharp declines in the availability of rural obstetric providers, leaving none in some areas, are exacerbating access problems. ***Over half a million rural residents live in counties that are without a physician trained to deliver obstetric care.*** There are fewer obstetricians available in rural than urban areas, but G/FPs who provide obstetric services partially compensate for this deficiency. The presence of physicians trained to provide obstetric services varies widely by region. Southern States appear to have the fewest trained providers, and over 250,000 residents of 53 Southern counties are without obstetric providers.

In many areas, physicians trained to provide obstetric services are not doing so. ***Surveys of FPs, who are the primary source of obstetric care in rural areas, show that rural FPs are almost twice as likely to be delivering babies as their urban counterparts and are providing a wider range of obstetric services.*** Nevertheless, while over 40 percent of rural FPs are providing routine obstetric care nationally, fewer than 20 percent are providing routine care in some rural areas of the South.

Several factors may contribute to a rural physician's decision not to practice obstetrics. There may not be adequate coverage for time off, consultation may be unavailable, and referrals to larger hospitals may be difficult to make. ***A number of States report that a large proportion of physicians are eliminating or limiting their obstetric practices as a direct consequence of the high cost of malpractice insurance and fears of lawsuits. It is more difficult for rural providers with small obstetric practices to pay for malpractice premiums, because insurance rates often do not consider practice volume.*** Rural FPs not providing obstetric care are much more likely than their urban counterparts to cite costs of liability insurance as a deterrent. ***Based on analyses of AAFP survey data, there could be a significant increase in the availability of FPs providing obstetric care in rural areas if malpractice insurance premium costs declined.*** Two-thirds of C/MHCs, important providers of obstetric care in many rural areas, also report that medical malpractice problems have affected their ability to furnish obstetric services.

Uncertain is whether low obstetric provider participation in the Medicaid program is more of a problem in rural than in urban areas. Representatives of MCH block-grant-funded and Medicaid programs report particular problems with low physician participation in rural areas, and yet obstetric provider and consumer surveys suggest that rural obstetric providers are more likely to be participating. Nevertheless, one survey of uninsured and Medicaid-insured women showed that as many as 8 percent of women delivering babies in rural hospitals could not get a doctor, midwife, or nurse to see them for prenatal care.

Although CNMs are important potential providers of rural obstetric services, they are few in number and the majority are located in urban areas. ***An inability to obtain malpractice insurance or physician backup, and in some cases, State practice laws have prevented nonphysician obstetric providers from practicing in rural areas.***

Hospitals in rural areas are much more likely to offer delivery services than urban hospitals of similar size. However, evidence suggests that in some rural areas women travel great distances to deliver their babies in hospitals outside their own communities. These patients may be attracted to obstetric services such as birthing rooms and sophisticated perinatal services and technologies. When patient outmigration occurs, it is the well-insured, higher income, and well-educated patient who leaves the local community for care, leaving behind the uninsured and Medicaid patients. Rural providers left to care for these patients may find it difficult to maintain a practice or to afford liability coverage. There may also be an erosion of public confidence in local rural hospitals that may not have the capital to invest in up-to-date obstetric equipment. Without technological support, some providers may drop obstetric services, considering them too risky. Some rural hospitals experiencing patient outmigration for obstetric services have successfully reversed this trend by reorganizing the existing obstetric service, upgrading equipment, and advertising available services. New communications technologies, such as facsimile machines, are improving rural obstetric providers' rapid access to obstetric monitoring services.

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[55] The Comprehensive Perinatal Service Program is cosponsored by the Medi-Cal program and the State's Maternal and Child Health Branch.

Although rural hospitals are much more likely than urban hospitals to offer obstetric care, they are much less likely to offer specialized care. ***Regionalized perinatal care helps to ensure that rural residents have access to specialized care when obstetric or neonatal emergencies arise, but there is evidence that regionalized systems of care have deteriorated over the past several years.*** Past Federal grant programs were successful in promoting the development of regionalized systems of perinatal care.

States are quite dependent on Federal resources to provide maternal and child health services. In 1987, nearly three-fourths (73 percent) of States' maternal and child health expenditures derived from Federal sources (*496*). ***Federal programs such as Medicaid, the MCH block grant program, and C/MHCs are especially important in rural areas since rural women are relatively less likely to have medical insurance that covers pregnancy expenses. The inability to pay for obstetric services is a serious problem in rural areas—in 1982, rural deliveries accounted for nearly one-half of all uncompensated deliveries.***

Government or privately funded programs have successfully reduced infant mortality in targeted rural areas. Components of these programs that are felt to have contributed to their success include publicly supported obstetric providers, midlevel practitioners, perinatal transportation systems, interagency coordination, and outreach workers that recruit patients and provide followup and transportation.

Chapter 16

Rural Mental Health Care

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Chapter 16

Rural Mental Health Care[1]

INTRODUCTION

Structurally, the mental health care system in the United States exists almost entirely apart from the physical health care system, yet the two systems have many parallels. Like the physical health system, the mental health system is called on to offer preventive services (e.g., educational sessions for parents of difficult children), other primary care services (e.g., therapy for individuals suffering from stress), inpatient services (e.g., for substance abuse treatment), followup and long-term care (e.g., for individuals with chronic mental disorders), and on-site crisis services (e.g., for victims of violence). Mental health professionals comprise a wide variety of social workers, nurses, clinical psychologists, and psychiatrists.

In practice, however, the mental health services available to individuals do not always appear as a coordinated whole, and the distinctions between physical and mental health are often blurred. Family practitioners, for example, are the providers of choice for many individuals with mental health problems. Individuals in many other professions (e.g., the clergy, teachers and school counselors) also provide substantial amounts of mental health care. In rural areas, where the number and scope of providers and services can be very limited, these providers become an integral part of the mental health "system."

This chapter reviews existing data on the comparative mental health status of rural and urban populations. It then describes the major Federal programs supporting mental health care in rural areas and summarizes what is known about the provision of rural mental health services and the availability of rural mental health providers. Finally, the chapter discusses models for linking physical and mental health services.

RURAL MENTAL HEALTH

Mental Health Status

Reliable data on the prevalence of mental disorders in rural residents are scarce. Those available suggest that differences in mental health status between rural and urban residents are slight.

In the 1985 National Health Interview Survey, a slightly smaller proportion of rural (nonmetro) than urban residents reported that they had experienced stress over the past 2 weeks, with women in either setting more likely to report stress than men (table 16-1) (*649*). Rural residents were also less likely to seek help for a personal or emotional problem, even after accounting for their lower reported stress (see table 16-1).

Using epidemiological data from North Carolina,[2] researchers have found some minor differences in the prevalence of mental health disorders among urban and rural residents. Major depression and anxiety disorders were more prevalent among urban residents, while rural residents were more likely to report cognitive deficits (e.g., memory deficits, disorientation) (*92,153*). The researchers found no rural/urban differences in rates of antisocial personality or schizophrenia (*92*). Small studies in other areas have found that rural residents have higher rates of manic-depressive psychosis than urban residents (*172*) and are more likely to be clinically depressed (*140*), although the latter finding is not supported by the North Carolina data.

National mortality statistics from 1980 suggest that, after accounting for differences in age, sex, and racial distribution, rural residents have slightly lower suicide rates than do urban residents (0.11 *v.* 0.12 per 1,000 residents) (*626*). Observers have reported high suicide rates in some economically distressed rural areas during the past decade (*423*), but it is not known whether overall rates have increased.

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[1] The preparation of this chapter was aided by the assistance of Lou Wienckowski, Rockville, MD.

[2] The National Institute of Mental Health (NIMH) supports ongoing epidemiological research at six sites: Los Angeles, CA; Baltimore, MD; St. Louis, MO; New Haven, CT; Durham, NC; and the State of Colorado. No data from the Colorado site, which includes a rural sample, have yet been published. Of the other sites, only the North Carolina research explicitly has included a "rural" sample. The population in this sample area has increased over time, however, and since 1983 the "rural" site has been categorized as metropolitan (*734*).

Table 16-1—Stress Among Metropolitan and Nonmetropolitan Residents

	Percent of population reporting stress					
	All		Men		Women	
	Metro	Nonmetro	Metro	Nonmetro	Metro	Nonmetro
Exposed to mental stress in job (adults) in past year.......	16.9	15.2	17.8	15.6	15.9	14.7
Experienced moderate or greater stress within past 2 weeks.........	52.7	47.1	50.8	45.4	54.3	48.7
Stress had some effect on health in past year................	44.4	43.2	38.5	36.1	49.7	49.6
Sought help for personal or emotional problem in past year.....	11.7	9.2	8.5	6.1	14.5	12.1

SOURCE: U.S. Department of Health and Human Services, Centers for Disease Control, National Center for Health Statistics, unpublished data from the 1985 National Health Interview Survey.

Economic crises did apparently increase mental health problems in some rural communities in the 1980s. Beeson and Johnson found that, among households in Nebraska, rates of psychological distress for those in farm communities rose from the lowest in 1981 to among the highest in 1986 (table 16-2) (*77*). In North Dakota, also heavily dependent on the farm economy, the State Department of Human Services documented substantial increases from 1980 to 1986 in domestic violence (from 950 to 3,450 cases), child abuse (from 1,685 to 3,021 cases), and death by suicide (from 73 to 93 cases) (*423*). Rural mental health facilities personnel in North Dakota cited depression as the primary mental health problem in their communities (*423*).

Heffernan and Heffernan found that family stress was a major concern among 42 families they studied that were forced out of farming (*245*). Nearly all of the adults became depressed upon leaving the farm, and over one-half continued to experience depression. Common behavioral responses included withdrawal from family and friends, increased physical aggression, and increased smoking or drinking. Children were reported to have become more anxious, demanding, aggressive, and rebellious, and their academic perfomance worsened. Adolescents increased their use of alcohol and became more withdrawn (*423*).

Alcohol and Drug Abuse

Drug abuse is less common in rural than in urban areas. Use of and dependence on marijuana, cocaine, hallucinogens, PCP,[3] and heroin is less common among rural than urban residents in every age group (*92,643*). There is some evidence that the popularity of particular substances in rural communities follows urban trends, but at a lower level. For example, a study of a rural middle school in the Rockies showed marijuana use among students was approaching urban rates by the late 1970s (*736*). In the early 1980s, students at the same school adopted more conservative attitudes toward drugs and exhibited less marijuana use (*735,737*).

Alcohol dependence, in contrast, is apparently higher among rural than urban residents (*92*). Rural adults are more likely than urban adults to report bouts of heavy drinking; 26 percent of adult rural drinkers reported at least 5 days of heavy drinking in 1985, compared with 24.5 percent of their urban counterparts (*649*). The pattern is more complex in adolescents; compared with urban teenagers, rural teens are more likely to have used alcohol but are slightly less likely to report days of very heavy drinking (*643*). Rural residents also report more drinking and driving than urban residents (*649*).

Local factors can contribute to high substance abuse. In a rural Michigan county with 16 percent unemployment, almost one-fourth of 6th-, 7th-, and 8th-graders surveyed reported occasional marijuana use, and one-fourth reported bouts of sickness from drinking. In both cases the frequencies were significantly higher than national norms (*538,539*).

FEDERAL PROGRAMS

Direct Federal involvement in the provision of mental health care dates to the Community Mental Health Centers Act of 1963 (Public Law 88-164),

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[3] PCP is the common abbreviation for phencyclidine.

Table 16-2—Prevalence of Mental Health Problems Among Nebraska Residents, 1981 and 1986

	Percent of residents in area with mental health problem							
	Farm[a]		Rural[a]		Urban[a]		Large urban[a]	
Scale	1981	1986	1981	1986	1981	1986	1981	1986
Depression	11	21	18	20	11	16	16	15
Anxiety	11	12	16	17	12	12	13	12
Psychosocial dysfunction	7	13	6	11	9	10	9	12
Cognitive impairment	18	15	15	13	14	16	14	14
General psychopathology	12	13	11	14	13	15	17	12
Percent scoring high on three or more scales	6	15	8	11	7	9	8	9
Number of cases	307	244	457	466	457	500	606	650

[a] Categories are based on Census Bureau definitions. "Rural" includes only individuals in communities of fewer than 2,500 residents who do not live on farms.

SOURCE: P.G. Beeson and D.R. Johnson, "A Panel Study of Change (1981-1986) in Rural Mental Health Status: Effects of the Rural Crisis," paper presented at the National Institute of Mental Health National Conference on Mental Health Statistics, Denver, CO, May 1987.

which authorized support for the construction of community mental health centers (CMHCs).[4] The Act required States to be divided into service delivery areas (catchment areas) that each contained 75,000 to 200,000 people. The legislation required that centers provide inpatient, outpatient, and partial hospitalization services; emergency services; and consultation and education services. Congress later expanded the CMHC model to include services targeted to specific populations (e.g., children, the elderly), substance abuse services, screening for courts and other community agencies, and transitional housing and followup care for those leaving inpatient psychiatric facilities (Public Laws 91-211, 94-63, 95-622, and 96-32). By 1981, 768 CMHCs had received grants and 296 of these (38 percent) were located in cities of 25,000 or fewer residents (*483*).

In 1978, Congress made CMHC funding contingent on collaboration with related agencies, including school systems, child care agencies, courts, social service agencies, and health departments (Public Law 94-63). To facilitate collaboration between physical and mental health services, the National Institute of Mental Health (NIMH) and the Bureau of Health Care Delivery and Assistance (BHCDA)[5] gave each of 58 community health centers—two-thirds of which served rural areas—funds to hire a mental health "linkage worker" to facilitate collaboration with CMHCs (*457*). The program was terminated in 1981.

Subsequent mental health legislation in 1980 (Public Law 96-398) stressed services to underserved and unserved populations, including (for the first time) rural residents. To receive a grant under this legislation, however, rural CMHCs were also required to serve at least one of the other targeted populations (i.e., children, elderly, poor, or chronically mentally ill individuals).

The Omnibus Budget Reconciliation Act of 1981 (Public Law 97-35) consolidated most previous mental health programs into a block grant, under which funding was not contingent on providing specific mental health services or targeting services to specific population (see ch. 3). This legislation repealed the collaboration agreement provisions of the 1980 law, cut funding levels by up to 30 percent (*51*), and eliminated most CMHC reporting requirements. Substance abuse grant funds were subsequently incorporated into the block grant (see ch. 3). Because of the greater perceived substance abuse problem in urban areas, Congress changed the allocation formula for the grant in 1988 to give greater weight to States with larger urban and young adult populations (Public Law 100-690).

Recently, rural issues in mental health legislation have regained visibility. In 1986, NIMH held two Policy Forums on Rural Stress, where participants reported high rates of suicide, depression, and stress in parts of rural America. Congress subsequently passed the Rural Crisis Recovery Program Act of 1987 (Public Law 100-219), which required the Secretary of Agriculture to provide one-time funding for programs to develop educational, retraining, and counseling assistance for farmers and rural families adversely affected by the farm crisis.[6]

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[4] Although no special funding or mandates were targeted for rural areas, NIMH had a part-time staff person working on rural mental health issues from 1967 to 1981 (*458*).

[5] Formerly the Bureau of Community Health Services.

Congress also appropriated $1.2 million to NIMH in September 1987 to establish Rural Mental Health Demonstrations (Public Law 99-591). These were designed to help States promote comprehensive health, mental health, and human services in rural communities and to fund rural mental health programs to address problems resulting from the farm crisis. The law specified that only States most adversely affected by the farm crisis would be eligible for funding. Thirteen States were identified,[7] and four—Iowa, Minnesota, Nebraska, and South Dakota—each received $300,000 for a period of 18 months to develop comprehensive rural mental health programs (see box 16-A).

Legislation in 1988 (Public Law 100-690) required that 15 percent of Federal funds appropriated under the block grant be set aside for rural mental health demonstration projects. Since NIMH was already spending an equivalent amount of demonstration money on rural projects, the legislation had little immediate impact on federally funded efforts (*547*).

Unlike the general mental health programs, the Community Support Program (CSP), launched in 1977, is designed specifically to assist States and local communities develop comprehensive systems of care for adults with seriously disabling mental health problems (*580*). Its goal is to provide emergency care while helping the individual reintegrate into the community (by linking the individual with formal long-term support—e.g., food stamps, CMHC services—and enhancing informal supportive networks of families and friends). The program does not specifically target rural areas, but several rural communities have CSP projects and may benefit from its focus on integrated care, consumer involvement, and community outreach.

BHCDA and the Alcohol, Drug Abuse, and Mental Health Administration (ADAMHA) recently signed an interagency agreement to provide funding to primary care agencies for substance abuse programs (*343*). The 3-year grant program began July 1, 1989 and disbursed $9 million to nonprofit primary care providers to develop plans to work with substance abuse treatment providers. Although the program might be highly appropriate to rural areas, due to the large number of grant requests all awards were made to urban recipients (*343*).

In early 1990, NIMH established an Office of Rural Mental Health Research to coordinate and administer relevant research and demonstration studies (*141,641*). This office will administer a newly advertised research effort that will include grants to rural mental health research centers (*640*).

SERVICES IN RURAL AREAS

Availability

Mental Health Services

Recent information on mental health service delivery in rural areas is minimal. Since the consolidation of programs into the block grant in 1981, States have not been required to keep records or report back to the Federal Government in any detail about the population served in CMHCs or the services clients receive. NIMH collects only summary information through two biennial surveys of mental health care facilities (*638*).

Based on the survey data, researchers have documented dramatic differences between rural and urban areas in the availability of local inpatient mental health services. Almost two-thirds of metro counties (63 percent) had some kind of inpatient services in 1983, but only 13 percent of nonmetro counties had facilities that offered such services (table 16-3) (*705*). Service availability among nonmetro counties also varied enormously. Among nonmetro counties with urban populations (by the Census definition) of more than 20,000, 54 percent had inpatient mental health services. In stark contrast, only 7 percent of the 2,110 nonmetro counties with smaller urban populations had inpatient services (*705*).

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[6] This law built upon Public Law 99-198, which was less specific and did not actually require the Secretary of Agriculture to support outreach and other mental health services.

[7] The 13 States were Colorado, Georgia, Iowa, Kansas, Minnesota, Mississippi, Missouri, Nebraska, North Dakota, Oklahoma, South Dakota, Vermont, and Wisconsin.

Box 16-A—The Rural Mental Health Demonstrations

The four Rural Mental Health Demonstrations were designed to assist States in developing comprehensive mental health, health, job retraining, and employment services to rural communities. Although all included State and local components, they had very different emphases. An evaluation of the four demonstration projects was completed in January 1990 *(147)*.

Iowa's State component included:

- interagency collaboration (e.g., with a State interagency rural crisis effort);
- knowledge development (e.g., a survey of the special services being provided by CMHCs to rural populations, a mental health needs assessment based on a survey of rural Iowans);
- training programs (e.g., workshops for school counselors and mental health and allied professionals), and
- technical assistance (e.g., to the Agricultural Extension Service's rural outreach and counseling program).

At the local level, Iowa placed professionals or paraprofessionals directly in the communities served by five CMHCs to develop comprehensive outpatient, consultation, and education services *(734)*.

Minnesota's State program included:

- an interagency State Advisory Committee (which included both mental health and agriculture officials);
- technical assistance to the local demonstration efforts; and
- the development of a videotape on the problems of rural women, which was used at a teleconference to test the value of teleconference technology for holding meetings among dispersed groups.

At the local level, the State funded outreach coordinators at three CMHCs, who implemented consultation and education activities in their catchment areas (e.g., a "peer helper" program at a local high school) *(734)*.

Nebraska's project included:

- the development of educational materials (e.g., a pamphlet on stress management for rural adults, a teacher's guide to a curriculum for fifth graders on the emotional aspects of rural life);
- a contract with Interchurch Ministries of Nebraska to provide training and evaluation support to that group's paraprofessional crisis hotline and field counseling efforts;
- a conference on rural mental health; and
- a data collection and literature review effort to appraise strategies for services integration.

The local direct service component of the project included two nontraditional models of mental health care: a "circuit-riding" mental health professional who rotated among three primary care physicians' offices, and a mental health professional located in a central "Ag Action Center" who provided services to distressed farmers *(734)*.

South Dakota's project differed from those in the other three States in that all but one CMHC in the State participated. State-level activities were limited to:

- the development of educational materials (e.g., a directory of State human service resources for rural families and a pamphlet and two videotapes on rural mental health topics); and
- the development of materials to assist the CMHCs in designing their local projects (e.g., a needs assessment survey and a survey of public service providers on awareness of CMHC services).

The local projects at the 10 participating CMHCs included educational activities aimed at the general public (e.g., stress workshops); consultation and education activities for area human service providers (e.g., workshops for educators and law enforcement professionals to help them understand and recognize mental health problems of rural adolescents); establishment of peer support groups; and direct service outreach efforts (e.g., purchase of a mobile office) *(734)*.

General acute-care community hospitals are the most common providers of inpatient mental health services (*216*). Nonetheless, rural acute-care community hospitals have fewer short-term psychiatric inpatient beds than do urban hospitals (averaging 1.5 *v.* 5.9 beds per hospital, respectively), and the relationship holds true for hospitals of every size category (*625*).

The availability in rural areas of comprehensive mental health services is much more difficult to determine. The little existing evidence suggests that rural areas not only are less likely than urban areas to have services, but where services exist they are narrower in scope. In a study of CSP delivery systems, the average number of services available to seriously mentally ill clients was more than 11 in all

Table 16-3—Inpatient Mental Health Services and Beds by County Type, 1983

County type	Number of counties	Number (percent) of counties with some inpatient mental health services	Estimated median number of inpatient mental health beds per county		Average number of facilities with some inpatient mental health services per county
			All counties	Counties with services	
All counties	3,137	774 (25)	0	52	2.5
Metro counties	735	466 (63)	29	120	3.5
Nonmetro counties	2,402	308 (13)	0	20	1.3
20,000 or more population	292	158 (54)	11	20	1.3
Adjacent to metro area	147	76 (52)	6	18	1.4
Not adjacent	145	82 (57)	13	20	1.3
2,500 to 19,999	1,325	145 (11)	0	26	1.2
Adjacent to metro area	560	57 (10)	0	32	1.2
Not adjacent	765	88 (12)	0	20	1.2
Fewer than 2,500	785	5 (<1)		22	1.0
Adjacent to metro area	221	2 (<1)	0	20	1.0
Not adjacent	564	3 (<1)	0	22	1.0

SOURCE: M.O. Wagenfeld, H.F. Goldsmith, D. Stiles et al., "Inpatient Mental Health Services in Metropolitan and Nonmetropolitan Counties," Journal of Rural Community Psychology 9(2):12-28, 1988.

four urban areas studies but ranged from 8 to 10 in the four rural study areas (*228*). Another study of CSP participants found that rural clients were less likely than urban clients to receive needed services (*567*).

A 1979 study assessing mental health service needs found that central cities, as expected, were more likely than other areas to have available a comprehensive set of services. Catchment areas that included both metro and nonmetro counties also had relatively high rates of comprehensive service availability. Surprisingly, within all-nonmetro catchment areas, the least densely populated areas[8] were actually the most likely to contain a comprehensive set of services (*355*).

As is the case for inpatient psychiatric care, rural acute-care general hospitals provide fewer outpatient, emergency, and specialty psychiatric services than do their urban counterparts (table 16-4). Psychiatric outpatient services are provided by more than twice as many urban as rural hospitals (14 *v.* 6 percent, respectively) (*625*).

Emergency mental health services are particularly crucial in rural areas. Rural residents with serious mental illnesses rely more heavily than do urban residents on crisis services, even after accounting for differences in emergency service availability and need (*567*). It is likely that the heavier rural usage is related to the lack of other mental health services (*567*). But like other rural services, emergency mental health services face problems of logistics, staff inconvenience, and costs entailed by covering large distances (*390*). Providing on-site crisis services may be especially problematic. Rural crisis services also reportedly use fewer techniques for needs assessments, provide less public education about the service, and provide more limited training of crisis workers than do urban crisis services (*390*).

Observers have reported that, while urban areas have a variety of agencies and organizations offering crisis programs, CMHCs are the principal rural providers of crisis services (*390*). Acute-care community hospitals play a smaller role in rural areas; compared with almost 32 percent of urban hospitals, only 17 percent of rural hospitals provide psychiatric emergency services on site (*625*).

Substance Abuse Treatment Services

Alcohol and drug abuse treatment facilities are relatively well represented in rural areas, although rural facilities serve a disproportionately small number of patients. Seventeen percent of all treatment facilities are in nonmetro counties (see table 16-5), but they serve less than 14 percent of all patients (*642*). Eight percent of the alcohol-only treatment facilities are located in nonmetro counties, but these facilities serve only 5 percent of the total patient population. Possible explanations for these findings are that rural treatment availability is

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[8] Nonmetro counties in which less than 50 percent of the population lived in Census-defined urban areas.

Table 16-4—Percent of Community Hospitals Providing Psychiatric Services, by County Type and Hospital Size,[a] 1987

Service	Nonmetro					Metro				
	6-24	25-49	50-99	100-199	200-299	6-24	25-49	50-99	100-199	200-299
Child psychiatric services	0	1.3	5.1	15.8	29.5	0	1.6	5.5	13.1	24.5
Geriatric psychiatric services	1.6	1.7	6.4	16.3	36.4	0	0.8	5.8	17.7	33.6
Psychiatric emergency services	7.7	8.0	14.7	27.9	53.8	0	4.9	12.7	32.8	50.1
Psychiatric education	0.5	1.7	6.0	17.1	37.1	4.5	1.6	9.9	18.8	36.4
Psychiatric consultation and liaison	3.8	3.7	10.3	19.4	37.9	4.5	12.3	14.6	27.1	39.4
Psychiatric partial hospitalization	3.8	1.2	4.6	9.1	18.9	0	3.3	4.4	8.7	17.0
Psychiatric outpatient services	2.2	2.8	4.5	9.9	24.2	0	4.1	5.8	12.7	22.6
Chemical dependency outpatient services	3.8	5.3	8.5	14.6	23.5	0	11.5	11.0	20.3	29.1

[a] Hospital size as measured by number of total beds. Specialty psychiatric hospitals and hospitals with more than 300 beds are not included in this table. The number of nonmetro hospitals in the latter category is very small.

SOURCE: Office of Technology Assessment, 1990. Data from the American Hospital Association's 1987 Survey of Hospitals.

Table 16-5—Alcohol and Drug Abuse Treatment Facilities: Location and Facility Orientation, 1987

Location and facility function	Facility type: Alcohol only	Facility type: Combined alcohol and drug	Total
Large metro areas (population more than 100,000)			
Treatment	1,383	2,479	3,862
Prevention/education	867	2,122	2,989
Other	776	1,522	2,298
Other metro areas			
Treatment	177	752	929
Prevention/education	145	624	769
Other	102	478	580
Nonmetro areas			
Treatment	138	838	976
Prevention/education	118	716	834
Other	67	487	554
Subtotal			
Treatment	1,698	4,069	5,767
Prevention/education	1,130	3,462	4,592
Other	945	2,487	3,432
Total (unduplicated count)	2,112	5,336	7,458

SOURCE: U.S. Department of Health and Human Services, Alcohol, Drug, and Mental Health Administration, National Institute of Alcohol Abuse and Alcoholism, unpublished data from the National Drug and Alcoholism Treatment Unit Survey, Oct. 30, 1987.

greater than demand, that rural facilities are smaller than urban ones, or that rural residents are less willing than urban residents to seek help for mental health problems or from local facilities. Rural residents are slightly underrepresented in substance abuse facilities as a whole (*642*). Mental health centers (e.g., CMHCs) are the most common sites for alcohol treatment in rural communities, accounting for 42 percent of the alcohol treatment caseload (*642*).

Table 16-6—Percent of Alcohol and Drug Abuse Treatment Facilities Providing Specified Services, by County Type, 1987

Service	Facility location[a]		
	Large metro	Other metro	Nonmetro
Hotline	30.7	42.6	48.4
Outreach services	48.2	53.4	62.8
Early intervention services	44.7	51.4	61.1
Employee assistance program	31.1	40.0	45.6
Teen suicide prevention	8.3	11.7	18.0
Self-help groups	65.7	59.5	57.9
Transportation	18.8	20.3	19.8
Crisis intervention	47.7	60.3	69.8

[a] Large metro = metropolitan areas of more than 100,000 residents; other metro = all other metropolitan areas; nonmetro = all nonmetropolitan areas.

SOURCE: U.S. Department of Health and Human Services, Alcohol, Drug, and Mental Health Administration, National Institute of Alcohol Abuse and Alcoholism, unpublished data from the National Drug and Alcoholism Treatment Unit Survey, Oct. 30, 1987.

Table 16-7—Alcohol Treatment Facilities by Client-to-Counselor Ratios and Location, 1987

Client-to-counselor ratio	Facility location[a]					
	Large metro		Other metro		Nonmetro	
	Number	Percent	Number	Percent	Number	Percent
Inpatient	2,004	100.0	426	100.0	301	100.0
1-4	518	25.8	151	35.4	83	27.6
5-9	1,088	54.3	212	49.8	162	53.8
10 or greater	398	19.9	63	14.8	56	18.6
Outpatient	2,446	100.0	626	100.0	804	100.0
1-4	4151	17.0	110	17.6	107	13.3
5-9	478	19.5	102	16.3	145	18.0
10 or greater	1,553	63.5	414	66.1	552	68.7

[a] Large metro = metropolitan areas of more than 100,000 residents; other metro = all other metropolitan areas; nonmetro = all nonmetropolitan areas.

SOURCE: U.S. Department of Health and Human Services, Alcohol, Drug, and Mental Health Administration, National Institute of Alcohol Abuse and Alcoholism, unpublished data from the National Drug and Alcoholism Treatment Unit Survey, Oct. 30, 1987.

Urban and rural substance abuse treatment facilities have different service patterns (table 16-6) (*642*). While facilities in urban areas are more likely to offer self-help groups, a larger proportion of rural facilities provide hotline services, outreach services, early intervention services, teen suicide prevention services, and crisis intervention. Compared with urban facilities, rural alcohol treatment facilities have slightly better counselor-to-client inpatient ratios, but worse outpatient ratios (table 16-7) (*642*).

Rural acute-care hospitals are less likely than equivalently sized urban hospitals to provide alcohol and chemical dependency outpatient services. Only 9 percent of all rural hospitals, compared with 20 percent of urban hospitals, provide outpatient substance abuse services (see table 16-4) (*625*).

Trends

Two notable changes in mental health services have taken place since the implementation of the block grant. First, CMHCs have tended to emphasize services that can be billed on a fee-for-service basis and are covered by third-party payers (e.g., one-on-one psychiatric therapy). A survey of 36 urban and rural CMHC administrators from 8 States found that they had reduced services and training after the block grant went into effect; one-half had increased billable services and fees to cover the loss of Federal resources (*185*). A study examining programming innovations in rural CMHCs in 12 Midwestern States concluded that the CMHC directors were so concerned with billable hours and fees-for-service that the relative benefits of case-

Table 16-8—Percent of Rural[a] Community Mental Health Center Directors Who Expended Efforts on Program Innovations, 1988

Program dimension	Effort expended[b]		
	Little or none	Some	Moderate or heavy
Rural development	81	10	13
Support groups (staff facilitated)	76	12	12
Hotline	71	11	17
Media programs	61	18	20
Stimulating self-help groups	59	15	24
Coordinating services	50	21	29
Crisis intervention	48	20	30
Consultation and education	28	24	47

[a] "Rural" mental health centers in this study were: 1) any centers located outside a city of 50,000 or more people and outside of a metro area, and 2) centers whose catchment areas included large portions outside such areas.

[b] Rows add to less than 100 percent because some respondents did not provide data.

SOURCE: J. Mermelstein and P. Sundet, "Factors Influencing the Decision To Innovate: The Future of Community Responsive Programming," Journal of Rural Community Psychology 9(2):61-75, 1988.

finding programs, such as hotlines and support groups, were overlooked as a potential strategy for increasing utilization and income (*383*). Fewer than one-half of CMHC directors reported expending any significant efforts on support groups, self-help groups, and crisis hotlines, and only a little more than one-half expended any significant efforts on crisis intervention or service coordination (table 16-8).

Second, in accordance with both Federal and State policies, CMHCs have tended to emphasize services for persons with severe and persistent mental illness at the expense of services for the less seriously or less chronically ill. Dowell and Ciarlo found that prevention, education, and consultation services were the first services to be cut after the block grants went into effect (*174*). Another post-block-grant survey found that all three of the highest ranked priorities of mental health program directors focused on services for the chronically mentally ill (*5*). Perhaps because of this shift in emphasis, many CMHCs were ill-equipped to deal with the increase in acute mental health problems associated with the farm crisis of the early 1980s (*383*).

The shift to increased services for seriously mentally ill patients was accomplished by an increase in outpatient and partial hospitalization rather than through an increase in residential and other inpatient care. After adjusting for inflation, State mental health program expenditures on community services increased by 10 percent between 1981 and 1985, while mental hospital expenditures decreased by nearly 5 percent (*540*).[9] A survey of 71 CMHC clinical directors found that the greatest expansion in services during 1983 and 1984 was in day treatment and partial hospitalization (*304*).

Rural CMHCs in the 1970s were more dependent than urban ones on Federal support (*67*), and a recent analysis found no reason to believe that the situation had changed (*423*). Whatever the trends in their financial support, rural CMHCs seem to have responded through retrenchment rather than through innovation. A survey of State mental health directors surveyed in the mid-1980s found that these directors listed the development of model rural CMHC services as second to last in a list of 62 priorities (*5*).

Other Issues

One rural service problem is the lack of awareness among rural residents that mental health services exist and can be helpful. Flaskerud and Kviz surveyed 3,057 residents of rural counties in six Midwestern States and found that fewer than one-half knew of available treatment centers and services for mental health and substance abuse problems (*193*). Fehr and Tyler found that only 40 percent of rural North Dakota survey respondents knew of the mental health clinic that served their catchment area

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[9] Unadjusted changes in expenditures during this time were an increase of 50 percent on community services and an increase of 30 percent on hospitals. These figures include both urban and rural areas.

(*189*). Even in communities where the clinics were located, only 52 percent of residents were aware of services (*189*).

An initiative in Illinois reported some success in improving awareness of mental health services. This State program used community education, a crisis hotline, and outreach workers with farm experience to reach farm families under stress (*119*). The program coordinators decided to operate the program separately from the local CMHCs, a feature that initially engendered considerable opposition to the program by some CMHC directors (*119*).

Transportation for both clients and professionals is a serious rural mental health service issue. Although catchment areas are no longer used for Federal purposes, many States continue to use them for funding and service requirements (*105*). The average size of a rural catchment area ranges from 5,000 to 17,000 square miles (depending on the definition of rural). The Federal mandate for these areas to comprise at least 75,000 people resulted in such large service delivery areas in some States that other legislative requirements for accessibility and continuity of care became difficult to meet for many of the most rural areas. One catchment area in Arizona, for example, is over 60,000 square miles. One in Montana is 50,000 square miles, and one in Kansas covers 20 counties (13 of which have no town with over 2,500 residents). Some rural distances were so great that continuity of care and followup services were virtually impossible to provide.

Difficulties in obtaining mental health care confidentially can also act as a barrier to services (*356*), particularly for rural youth. A survey of adolescents in a small town in the Midwest showed a preference for specialized clinics over private physicians' offices for particularly sensitive matters such as contraception and substance abuse (*149*). Adolescents also prefer not to be accompanied by parents when they seek health care for problems like depression (*381*).

Other problems for rural mental health service delivery include communication (e.g., high telephone costs), large numbers of patients who cannot or will not pay for care, difficulty in recruiting and retaining mental health professionals, and a lack of suitable service models (*458*).

RURAL MENTAL HEALTH PERSONNEL

Mental Health Professionals

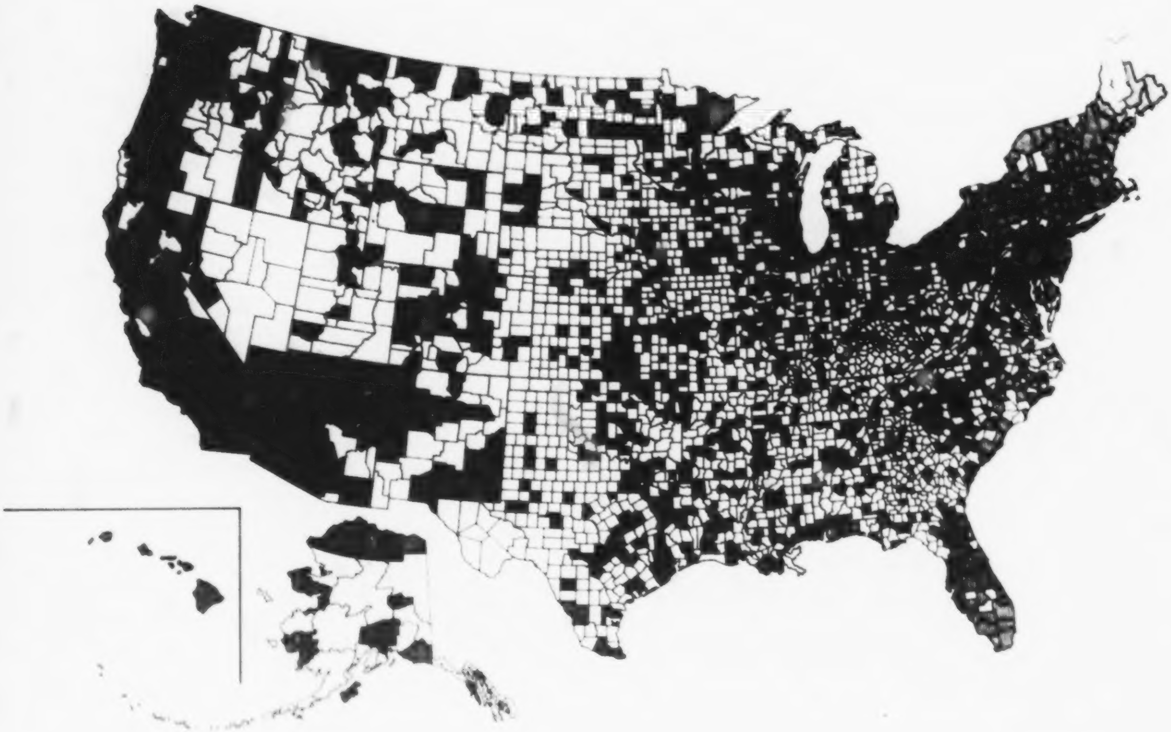
A study of professionally trained mental health personnel (i.e., psychiatrists, Ph.D. psychologists, social workers, master's level psychologists) done in the early 1980s found that there were more counties without such professionals than there were counties with at least one type of mental health professional (1,682 *v.* 1,393) (figure 16-1) (*324*). Counties without mental health personnel had lower educational levels and were "more rural" than those with providers.

The uneven dispersion of mental health professionals is most notable for psychiatrists.

- Although both urban and rural areas have experienced recent increases in numbers of psychiatrists, the number of non-Federal psychiatrists per 100,000 residents in rural areas is still less than one-fourth the urban number (3.6 *v.* 15.9) (table 16-9) (*686*).
- In 1988, 61 percent of all rural residents—over 34 million people—lived in designated psychiatric personnel shortage areas (*665*).
- Staff psychiatrists are less likely to be found in rural than in urban general hospitals of all sizes (table 16-10); over 90 percent of the Nation's 1,890 rural hospitals with fewer than 100 beds have no psychiatrist on staff (*625*).
- Rural residents travel for substantially longer times to visit psychiatrists than do urban residents (averaging 33 *v.* 24 minutes, respectively) (*644*).
- Living in a rural area reduces an individual's probability of seeing a psychiatrist by more than 30 percent (*548*).

Psychologists are also apparently disproportionately distributed between urban and rural areas, although national data are lacking. One study of psychologists who received their doctorates from programs supported by the NIMH between 1968 and 1980 found that 11 percent were practicing in communities of fewer than 50,000 residents (*546*). In contrast, of psychologists who were trained in the 20 existing rural mental health programs, or who expressed an intention to obtain rural training, 24 percent worked in small communities (*546*).

Figure 16-1—Geographic Distribution of Counties With at Least One Provider and With No Listed Provider



NOTE: Counties with at least one provider are shaded; those with no listed providers are unshaded.

SOURCE: D.J. Knesper, J.R.C. Wheeler, and D.J. Pagnucco, "Mental Health Services Providers' Distribution Across Counties in the United States," *American Psychologist* 39(12): 1424-1434, December 1984. Copyright 1984 by the American Psychological Association. Reprinted by permission.

Master's-level clinical psychologists are less numerous than Ph.D. psychologists, but they are more evenly distributed. An extrapolation of data for the 10 States with the largest rural populations found that the average number of doctoral-level psychologists per 100,000 residents was 14, compared with 19.0 for the total population (*571*). The average number of master's-level psychologists in these 10 States was 9.2 per 100,000, compared with 10.1 per 100,000 for the entire United States. (Many master's level psychologists have a limited scope of practice or must work under supervision. Only three States—Minnesota, Vermont, and West Virginia—permit master's-level personnel to hold licenses as independent psychologists practicing outside the educational system (*155a*).)

A preliminary study of six States[10] found that social workers are the most widely dispersed mental health practitioner group in low-income rural areas and are more likely than either psychiatrists or psychologists to choose to practice in these areas (table 16-11) (*416*). In about 25 percent of all the counties studied, social workers were the only mental health providers. Furthermore, a substantial proportion of counties with no mental health providers were contiguous with counties served only by social workers (*416*).

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[10] Illinois, Michigan, Oklahoma, Texas, Florida, and West Virginia.

Table 16-9—Non-Federal Psychiatrists by Metropolitan/Nonmetropolitan Location, 1975 and 1988

	Rate per 100,000 population		Percent change
	1975	1988	1975-88
United States (total)	10.0	12.9	28.9
Metro	12.4	15.9	28.2
Nonmetro	2.6	3.6	35.4
50,000 and over[a]	3.8	5.6	47.0
25,000 - 49,999[a]	2.6	3.1	17.8
10,000 - 24,999[a]	1.4	1.6	12.5
Less than 10,000[a]	0.6	0.8	29.7
6+ persons/sq mi[b]	0.5	0.8	83.5
<6 persons/sq mi[b]	0.7	0.9	17.4

[a] Includes only nonmetro counties.

[b] Includes only nonmetro counties of fewer than 10,000 residents.

SOURCE: U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, unpublished data from the Area Resources File (provided by H. Stambler, 1990).

A study of the Nebraska community mental health workforce between 1981 and 1988 found that rural centers relied heavily on master's-level professionals, while employees in urban centers were predominately bachelor's level and below (*583*). Although there was a substantial decrease in rural staff during the period, the decrease was mostly in nonmedical staff; the number of full-time-equivalent medical staff did not decrease significantly (*583*).

Eisenhart and Ruff visited 10 mental health centers and concluded that urban and rural mental health professionals provide different services to clients (*182*). They found that rural mental health professionals had to perform a greater variety of tasks, accept a less structured environment, deal with more crisis situations, respond to other staff members' needs and concerns, and develop a sensitivity and commitment to the local community. In contrast, the urban mental health professional was able to concentrate on developing specialized skills (e.g., treating behavioral disorders) and focus more on professional issues such as publishing articles and continuing education (*182*). The different style of care required in rural communities may discourage psychiatrists and psychologists from choosing a rural practice unless they are trained to contend with the uniquely rural needs.

Isolation adversely affects recruitment and retention of mental health professionals in many rural communities (*163,233*). The isolation of some rural mental health professionals can spawn strong interdependent relationships and innovative arrangements among colleagues. In communities without psychiatrists, for example, the primary care physicians who must authorize the medications for their mentally ill patients may consult with their local psychologist colleagues—who are prohibited from prescribing—regarding information about the medications (*111*). In other areas, centrally based psychiatrists may provide substantial amounts of services through telephone consultation to rural therapists and nurses on site (*247*). A part-time satellite clinic staffed by a group of nonpsychiatrist health professionals with some specialty expertise (e.g., family services, the chronically mentally ill) proved successful in enhancing service availability and minimizing professional isolation in Maine (*120*).

Like other health professionals, rural mental health professionals often must become generalists (*182,234,458*). They may need to develop techniques for community outreach, monitor persons with chronic illness, consult with teachers to help children in distress, or develop training modules for stress management. Moreover, in rural areas mental health professionals must become part of the community to be effective (*234*). The overlap between personal and professional roles can lead to burnout and conflicts between professional impartiality and personal values. For the patient, this overlap is also an issue because the effectiveness of mental health treatment is often dependent on anonymity and confidentiality.

Pulakos and Dengerink examined the services provided in State-funded rural and urban CMHCs in Washington State (*497*).[11] They found that rural therapists were more likely to be generalists (spending time in two or more activities), while urban therapists were more specialized. Compared with urban therapists, rural therapists spent more time in support services (e.g., advocacy, recordkeeping) but comparable time in indirect services (e.g., prevention, consultation, education). In both rural and

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[11] "Rural" and "urban" were defined by county population. Rural centers were located in 15 communities ranging in population from 2,600 to 46,000 and urban centers were located in 15 communities with more than 46,000 residents.

Table 16-10—Average Number of Mental Health Professionals[a] in Community Hospitals, by County Type and Hospital Size, 1987

Hospital size (number of beds)	Metro				Nonmetro			
	Psychiatrists	Psychologists	Social workers[b]	Total[c]	Psychiatrists	Psychologists	Social workers[b]	Total[c]
6-24	0.3	0.0	0.1	0.4	0.0	0.0	0.1	0.1
25-49	0.6	0.0	0.3	0.9	0.1	0.0	0.3	0.3
50-99	1.0	0.1	0.7	1.8	0.2	0.0	0.7	0.9
100-199	3.0	0.3	2.0	5.3	0.8	0.1	1.4	2.3
200-299	6.3	0.4	4.2	11.0	2.3	0.2	2.8	5.3
Total (<300 beds)	3.4	0.3	2.2	5.9	0.4	0.0	0.8	1.2

[a] Includes both full-time and part-time personnel (not full-time equivalents; part-time staff are weighted the same as full-time staff). Figures for psychiatrists are for full-time staff only.

[b] Social workers may hold positions not associated with the provision of mental health services (e.g., discharge planning).

[c] Total includes all full-time psychiatrists and all full- and part-time psychologists and social workers.

SOURCE: Office of Technology Assessment, 1989. Data from American Hospital Association's 1987 Survey of Hospitals.

Table 16-11—Percent of Counties Served by Mental Health Providers in Six States

State	Psychiatrist, psychologist and social worker	Psychologist and social worker only	Social worker only	Other combination[a]	None
Illinois	29	19	33	13	6
Michigan	43	27	28	1	1
Oklahoma	18	14	34	30	4
Texas	19	10	26	40	3
Florida	52	9	5	16	18
West Virginia	37	35	26	4	6

[a] Primarily psychiatrist and social worker.

SOURCE: National Center for Social Policy and Practice, "Report of the Geographic Distribution of Mental Health Providers: A Pilot Study," unpublished manuscript, Silver Spring, MD, July 1982.

urban communities, individual psychotherapy was the direct service most frequently provided, and family and group therapy were provided at roughly the same level across communities (*497*).

No single office at NIMH has responsibility for mental health personnel issues. The Health Resources and Services Administration (HRSA) has the administrative capability to identify mental health shortage area designations, but national data sources describing nonpsychiatric mental health professionals and the locations of their practices are not available (except for professionals who work in specialized mental health facilities).

Other Rural Mental Health Providers

Primary Care Physicians

Mental and physical health care systems are interdependent in both rural and urban areas. Primary medical care is an important part of mental health service delivery because primary care physicians and clinics are the first contact in the care system for many patients, they often assume long-term responsibility for the care of their patients, and they can help to integrate services for the patient (*2*). Only 19 percent of respondents to a survey of rural North Dakota residents listed mental health services as their first choice for treatment for "mental, nervous, or emotional problems," while physicians were ranked as the first choice by 50 percent of the respondents (*189*). For seriously mentally ill patients on long-term drug therapy in rural areas, primary care physicians may be the only persons available who can authorize the needed prescriptions and monitor patients' progress.

In fact, four times as many people are treated for mental health disorders by primary caregivers as are treated by mental health specialists (*10,503*). More specifically, in 1984:

- Nonpsychiatrist physicians provided almost one-half (48 percent) of the patient visits resulting in the diagnosis of a mental disorder.
- General practitioners, family practitioners, and internists accounted for over three-fourths (77 percent) of these diagnoses.
- Primary care physicians referred these patients to a mental health professional in only 5 percent of the episodes.
- About 85 percent of all psychoactive drug prescriptions were made by nonpsychiatrists.
- Over one-fourth (28 percent) of nonpsychiatrist visits were for psychological problems.
- Anxiety and nervousness accounted for 11 percent of the reasons people visited a physician (*655*).

These numbers are not specific to rural areas, where the relative lack of mental health professionals in rural areas may lead to particularly heavy dependence on primary care physicians as sources of mental health care. Only 5 percent of visits to psychiatrists occur in rural areas. In contrast, 30 percent of all visits to physicians by patients with psychiatric diagnoses are made in rural areas, as are 16 percent of the physician visits that include some psychotherapy (*655*). Clearly, rural nonpsychiatric physicians are providing substantial amounts of mental health care.

Allied Mental Health Professionals, Paraprofessionals, and Volunteers

Members of the clergy are professionals who are particularly important providers of some rural mental health services. In the North Dakota survey, 45 percent of respondents listed the clergy as their first choice of help for "family problems" (*189*).

Local paraprofessionals with no formal academic mental health training can fill some of the gaps in rural mental health provision. These individuals receive training and consultation from mental health professionals on topics such as crisis management, case identification, and community education. D'Augelli suggests that paraprofessionals can increase community awareness and acceptance of mental health services and promote mental health through such mechanisms as conducting training in "life skills" (e.g., parenting), developing self-help groups, and strengthening natural helping systems (informal networks of community residents) (*160*). They can also identify new cases and act as liaisons between professionals and the community.

Crisis intervention is one area where trained volunteers can sometimes provide important first-level help. Volunteers may be an especially critical component of crisis services both in remote areas not served by a local mental health professional and in areas where a 24-hour on-call professional would require a long-distance telephone call or extensive travel.

Helping community members to help each other is another approach that has been successfully adapted to rural areas. In one example, mental health professionals in a CMHC in northwestern Iowa developed support groups and a peer listening program for farmers and their families (*3*). The community response was so overwhelming that the CMHC started support groups in satellite clinics and reported a tenfold increase in the utilization of its services.

Mutual- and self-help groups that focus on a common medical or mental health problem are another approach for including local residents in mental health care. These groups, which have grown dramatically in popularity over the past decade, provide residents with the opportunity to help each other cope with stress, solve problems, develop a sense of belonging, share knowledge and experiences, and educate themselves about medical alternatives (*229,344,638*).

Training for Rural Mental Health Personnel

Fewer than one-third of mental health training programs place any emphasis on rural training and placement (*546,560*). Exemplary programs do exist. Lichtenstein et al. describe the development of a 1-year training program designed to provide outreach services (consultation, education, and community organizational development) in two rural communities (*351*). Students in the program reported moderate skill acquisition and positive community response. Bergstrom et al. describe another rural mental health training program that included a practicum in rural consultation and education (*84*). A mental health Area Health Education Center in North Carolina reports success in developing continuing education programs for rural professionals and facilitating linkages between rural mental health generalists and central specialists (*227*).

Rural-oriented training seems to affect the likelihood that graduates will practice in rural areas, although information is scarce. A study of graduates of psychology training programs supported by NIMH between 1968 and 1980 identified two rural-oriented programs training master's-level psychologists (*546*). Of the 66 identified graduates of these programs, 42 were practicing in small towns or rural areas. This study also found that master's-level students were more likely than doctoral-level students to remain in the State of their training (*546*).

Recent legislation (Public Law 100-607) expanded Federal support for faculty and curriculum development for health professions training programs, including graduate clinical psychology programs. Since the support applies only to doctoral-level training programs, and there are no provisions for targeting funding to rural-oriented projects, this provision may have little effect on the availability of psychologists in rural areas. However, the legislation also extended the Federal loan repayment program to allied health professionals, including clinical psychologists, who practice in rural areas.

A short-term continuing education program for rural practitioners (not to exceed 5 days) was introduced in 1988 and is administered by NIMH. This Depression Awareness, Recognition, and Treatment program targets rural and agricultural areas affected by the farm crisis and was designed to provide current information on the recognition, diagnosis, and treatment of depressive disorders to the general public, mental health professionals, and primary care physicians (*639*). Programs in medicine, psychology, nursing, and social work are eligible for funding.

Primary care physicians receive limited training in mental health issues. For example, the 6-week clerkship in psychiatry for all third-year students is the briefest among the five standard third-year clinical rounds (*587*). Medical students' coursework in behavioral sciences is similarly limited, amounting to approximately 5 percent of the medical college class curriculum (*587*). Limited training may explain why primary care physicians are less able than mental health professionals to diagnose mental disorders accurately (*47*). Under the Health Professions Educational Assistance Act of 1976 (Public Law 94-484), NIMH operated several initiatives to promote mental health training for primary care physicians (*547*). However, the Act and the program expired in 1980.

MENTAL AND PHYSICAL HEALTH LINKAGES

The notion of linking physical and mental health care is not new, but it may be especially useful in rural areas because of limited resources (e.g., personnel, buildings, funding) and services. Linkages may also help to reduce the stigma associated with the mental health system. Possible models include:

- a contractual agreement between providers for referral and information exchange,
- a mental health staff person in a health center to provide screening and information to patients,
- a mental health unit in a health center to provide direct services,
- a mental health professional in the health care setting to consult with physicians and other health professionals and to provide direct mental health services,
- a "linkage worker" to advise primary care health personnel on patients with mental health problems (but provide no direct services to patients), and
- provision of comprehensive care with the mental health and health professionals working together on each case (*476*).

An evaluation of several linkage efforts of the 1970s concluded that internal organizational teams and linkage agreements between organizations were the most successful (*104*). In these efforts, the mental health professionals consulted with health center staff about their patients, provided inservice training to the health center staff, provided emergency services to health center patients, evaluated health center patients for psychiatric problems, provided short-term psychotherapy, and referred patients. Linkage workers were usually psychologists (41 percent) or social workers (38 percent). Most of the linkage workers' time was spent in the primary care setting, with 27 hours per week devoted to consulting with primary care professionals; patient evaluation and therapy were the services most frequently provided. The linkages resulted in several organizational changes, including increased interaction among clinical, administrative, and board staff, joint recordkeeping, and shared administrative services. Linkages appeared strongest where there was shared administrative control between the mental and physical health care providers and where the linkage worker spent equal time across primary care and mental health settings (*104*).

The motivations for implementing linkage programs differed between rural and urban areas. Rural health center directors implemented programs primarily in order to provide direct treatment and consultation; only 17 percent reported that establishing a mechanism to refer patients to the CMHC was the most important factor. In contrast, 43 percent of urban health center directors listed referral opportunities as the primary motivating factor (*114*).

Broskowski found that the most common linkage benefits reported by agency directors were:

- increased awareness and detection of mental health problems by primary care providers,
- more appropriate utilization of health and mental health services,
- increased access to mental health services, especially for the hard to reach populations (e.g., elderly, minorities, and the poor),
- reduced waiting for primary care patients and reduced burden of primary care staff,
- improved information and records exchange, and
- better continuity of care (*104*).

Few problems were reported, and most reported were eventually solved. They included difficulties in recruiting qualified linkage staff, providing adequate space for the linkage worker, and developing adequate transportation between sites for referrals. Problems of space and transportation were more common in rural than in urban programs (*114*).

The threat of losing autonomy and interdisciplinary and organizational rivalries are major barriers to linkages (*104,706*). Arguments often revolve around who gets reimbursed, who controls the tasks for the linkage worker, and who controls policy for the linkage agreement (*104,121*). Steps to overcome these barriers include technical assistance and training for the linkage worker and for directors, and increasing the awareness of health and mental health officials of their role in facilitating (or hindering) linkage initiatives (*104*).

Several apparently successful examples of linkage agreements are found in the literature (*98,407, 484,637*), and such agreements are a component of some of the Rural Mental Health Demonstrations (see box 16-A). In one case study, Boydston described the efforts of a social worker working with local physicians to provide mental health services (*98*). The researcher concluded that collaboration resulted in better case detection, smoothed transitions between the physical and mental health care systems, and improved client attitudes about mental health treatment. In this case, the physicians came to value the mental health services because they allowed the physicians more time to treat physical problems (*98*).

A recent informal survey of 20 rural States found that none have instituted any program incentives for health and mental health linkages, although all of them expressed interest (*171*).

CONCLUSIONS

The prevalence of mental disorders in rural Americans is similar to that of their urban counterparts. The services available to rural residents are usually more limited, however, both in number and in scope, and those that do exist are generally provided by nonpsychiatric professionals. Psychiatrists are entirely absent in most rural communities.

Because alternative sources of mental health services are scarce, rural mental health facilities and personnel may be torn between the competing demands for services to chronically mentally ill individuals and services to individuals experiencing temporary distress or less debilitating problems. Innovative approaches (e.g., expanding the Community Support Program to include more rural delivery models) deserve investigation for both populations. Such approaches must build on the professionals and paraprofessionals available. Models that incorporate the use of primary care physicians, volunteers, and paraprofessionals may be particularly appropriate because of the scarcity of mental health professionals.

Federal and State funding of services such as prevention, education, and consultation are especially important to rural areas, because these services are not reimbursable by most payers and there may be no private sources of such services. In most States, it appears that service requirements for CMHCs have been reduced to those likely to produce revenue (e.g., psychotherapy, partial hospitalization), while funding for preventive services, consultation with other health and human service professionals, public education, and evaluation have been reduced. Funding of rural mental health in general also may have been reduced, but the lack of data precludes a firm conclusion. In fact, since the implementation of the block grant there has been insufficient data to support any significant evaluation of Federal rural mental health funding efforts.

Rural mental health professionals face problems similar to those encountered by other health professionals. They have fewer practice-specific training programs, fewer colleagues with whom to discuss professional issues, and more diverse demands on their time than do their urban counterparts. Rural mental health professionals are also isolated in many ways. They often lack the opportunity to discuss cases with other professionals, must make decisions alone, and lack opportunities for supervision or mentoring. Primary care physicians, who provide much rural mental health care, receive relatively little training in mental health diagnosis and treatment.

The lack of psychiatrists and doctoral-level psychologists in rural areas, the proportion of mental health care provided by nonpsychiatric physicians, and the need to provide mental health services in ways and settings acceptable to rural residents all suggest that integrating mental health and other health care is especially important in rural areas. Linkages between the physical and mental health systems that are provided by social workers, psychologists, and paraprofessionals play an important role in extending mental health services. Unfortunately, Federal stimulation of linkage efforts has waned since the implementation of the mental health block grant in 1981.

Despite the apparent success of the short-lived Federal linkage program, no evaluation of the ultimate effectiveness of the program was undertaken. Renewed efforts could include more attention to such measures as changes in inappropriate utilization of social and health care services and the most effective interorganizational linkage models for different rural environments (*537*).

Appendixes

Appendix A

Method of the Study

This assessment was prompted by congressional concern about the state of rural health care as the 1980s drew to a close. Reported high rates of rural hospital closures, difficulty recruiting health professionals to rural settings, and concern about the future competitiveness and financial viability of rural providers were contributing issues in the request for this study.

In April of 1988, the Senate Rural Health Caucus asked that the Office of Technology Assessment (OTA) undertake a broad assessment of rural health care that would include, but not be limited to:

- a discussion of criteria to identify or measure rurality,
- an overview of rural health and identification of rural health trends,
- a discussion of the place of new health technologies in the rural health care system, and
- an assessment of educational and information needs of rural health professionals and factors that affect these professionals' decisions to locate in rural areas.

Members of the Caucus signing the request letter included a member of OTA's Technology Assessment Board, the Senate Minority Leader, the Chairman of the Senate Committee on Environment and Public Works, and the Chairman of the Senate Select Committee on Indian Affairs. In May 1988, a letter reiterating these concerns and supporting the request was received from the ranking minority member of the Senate Committee on Labor and Human Resources.

The proposed assessment was approved by the Technology Assessment Board on June 21, 1988 and began in August of that year. During the early part of the project, OTA staff consulted with consumer and professional organizations, Federal and State agency personnel, health services researchers, independent health professionals, and other interested individuals in order to identify critical issues and garner suggestions for candidates for the study's advisory panel. The advisory panels for OTA studies guide OTA staff in selecting material and issues to consider and review the written work of the staff, but the panels are not responsible for the content of final reports.

The advisory panel for this assessment consisted of 20 members with expertise in, or important perspectives on, rural hospital and clinic administration, rural medical and nursing practice, rural health services research, State health system planning and administration, rural economic development, grants assistance, and health professions education. The panel, chaired by James Bernstein of the North Carolina Department of Human Resources, met for the first time on October 28, 1988. At this meeting the panel discussed some background materials, suggested and reviewed plans for the project, and identified some important issue areas to be included in the study.

As a core component of the study, project staff held three field workshops to discuss specific rural health topics and to hear presentations on these topics from local and regional health practitioners, administrators, and officials. The meetings were organized by the National Rural Health Association under contract to OTA. The first of these meetings, on rural hospitals, was held on Jan. 11, 1989, in Scottsdale, Arizona. The second, on health personnel issues (with special emphasis on the needs of "frontier" areas) was held on Feb. 28, 1989 in Bismarck, North Dakota. The third, addressing health care issues in rural areas of heavy poverty, was held on June 15, 1989 in Meridian, Mississippi. A brief summary of the invited participants and presentations at these meetings is found in appendix G.

During the course of the assessment, OTA conducted two separate surveys of States to identify the level and scope of their rural health activities. The first survey, conducted in spring of 1988, provided an overview of State activities related to rural health and priorities and problem areas as identified by State personnel. All 50 States responded to this survey. The second survey, conducted in the summer of 1989, focused specifically on State activities and experiences regarding the designation of health personnel shortage areas and medically underserved areas. Forty-five of the 50 States returned this survey. The methods, instruments, and respondents for these surveys are presented in appendix D. Survey results are presented in chapters 4, 11, 12, and 13, depending on the topic addressed by the survey question.

In addition to the field workshops and surveys, OTA conducted site visits, literature reviews, and extensive conversations with State officials and rural health professionals. Data collection was an important part of this assessment, and a substantial amount of information was derived from data supplied by a variety of individuals and organizations. Many of the data were previously unpublished, and the cooperation of these individuals and organizations was tremendously helpful to OTA. OTA also purchased from the American Hospital Association the results of its 1987 Survey of Hospitals and analyzed these data in-house. Appendix C summarizes some technical and definitional issues related to that analysis.

A preliminary draft of the report was reviewed by the advisory panel and discussed by panel members at the second and last meeting of the panel on January 26, 1990.

Subsequently, a revised draft was sent, either in part or in whole, to more than 150 Federal and State officials, representatives of interested parties, and other experts for their review and comment. The final draft, incorporating revisions based on reviewers' comments, was transmitted to the Technology Assessment Board in late March 1990.

In addition to the main report, this assessment of rural health care included two other publications. The staff paper, *Defining "Rural" Areas: Impact on Health Care Policy and Research*, was released in July 1989 and discussed the health care policy implications and uses of various alternative ways of defining rural areas and populations. The Special Report, *Rural Emergency Medical Services*, released in November 1989, was written by OTA staff based on background papers, a workshop, and additional sources of information. The Department of Transportation provided financial support for both the commissioning of the papers and the expenses of workshop participants. A summary of this report is contained in appendix H.

Background papers commissioned by OTA during the course of the assessments of *Health Care in Rural America* and *Rural Emergency Medical Services* are listed below.[1] Tom Hoffman of Washington, DC indexed the report.

- J. Chin, "Rural Emergency Medical Services: A Review of the Literature," April 1989.
- M.I. Dube, "The Legal Environment Affecting the Delivery of Rural Health Care," July 1989.
- L.J. Shuman and H. Wolfe, "Ruralism: A Model for Rural EMS Systems Planning," July 1989.
- D.G. Stamper, "Status of Air Medical Transport Systems," May 1989.

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[1] All papers were prepared under contract to OTA. Funding for the three background papers relating to emergency medical services, however, was provided by the U.S. Department of Transportation.

Appendix B
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Appendix C

Definitions of Hospitals in OTA Analyses of 1987 American Hospital Association Survey Data

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Community hospitals included in the OTA analyses are defined as all non-Federal[1], generally short stay (less than 30 days), nonspecialty hospitals responding to the American Hospital Association (AHA) 1987 annual survey of U.S. hospitals. (Community hospitals with long-term care units having patient stays longer than 30 days are included). This definition differs slightly from AHA's definition of community hospitals, which also includes non-Federal, short-stay specialty hospitals.

Federally designated sole community hospitals (SCHs) and rural referral centers (RRCs) are those identified as existing in 1987 or later, according to lists provided by the Health Care Financing Administration (HCFA) that were matched with the list of community hospitals in the OTA analyses. The OTA analyses do not include every designated SCH and RRC, as in some cases hospital names of lists supplied by HCFA do not correspond to the names of hospitals available from the AHA data file. This may be due to name changes as a result of reorganization, buyouts, transfers of ownership, or other factors. The lists may also include hospitals that have closed. The data on slippage are presented in table C-1.

Table C-1—Data on the Number of Sole Community Hospitals (SCHs) and Rural Referral Centers (RRCs), 1987

	SCHs	RRCs
Number on HCFA list	367	229
Number identified in AHA data[a] ..	313	217
Difference (%)	54 (14.7%)	12 (5.2%)

[a] Office of Technology Assessment analyses are based on these figures.

SOURCE: Office of Technology Assessment, 1990.

The 277 community hospitals included in the OTA analyses that are defined as frontier are those located in counties with population densities with 6 or fewer persons per square mile. The list of 387 frontier counties was tabulated from 1985-86 county population estimates based on the 1980 census and was supplied by the National Association of Counties in Washington, DC.

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[1] Hospitals controlled by Federal agencies, such as the Department of Veterans Affairs and the Indian Health Service, are not included.

Appendix D

Background Material for Two OTA Surveys

Methods

OTA's 1988 Survey of State Rural Health Activities

Survey Instrument and Respondents—A written questionnaire was designed to assess State involvement in rural health programs and activities (a copy of the questionnaire and a list of respondents' names and addresses follow the methods section in this appendix). A draft of the survey instrument was reviewed by selected individuals and by two of the eventual respondents, and it was subsequently revised in accordance with their comments.

Respondents for the survey were identified through brief telephone interviews with State health officers or other individuals known to be knowledgeable about rural health activities within that State. Multiple responses were received from 13 States where 2 or more organizationally independent entities were identified as playing a major role in State rural health planning, development, research, and/or policy (see ch. 4, figure 4-1). A total of 65 respondents reported for the 50 States.

The survey solicited basic descriptive information including the agency's specific rural health objectives, location in the State organizational structure, and origins (e.g., legislative or administrative).

Respondents were asked to indicate whether they had been directly involved during the past 3 years in specific rural health *activities* within the following 8 general categories:

1. provider recruitment/placement;
2. financial assistance to local organizations;
3. technical assistance to rural communities, health facilities, and health providers;
4. rural health research;
5. rural health systems coordination and implementation;
6. education;
7. legislative affairs relating to rural health; and
8. rural health-related publications.

Respondents were then asked to identify, from the eight general *activity* categories, the three that were their organization's highest priorities for action, and to indicate any special populations (e.g., children, elderly, low income, racial/ethnic groups) to which their previously identified rural health *activities* were targeted. Respondents were asked to rank six general health *issue areas* (e.g., medical liability insurance costs/availability, payment issues, health provider issues) according to which were the most pressing *issues* for rural health in the State, with the option to add and rank any of their own priorities not listed. Respondents were also asked to rate on a six-point scale their level of involvement in several specific health services (e.g., acute health care, child health care, long-term care, mental health care). Due to inconsistencies in interpretation of and responses to this section[1], however, responses were not included in the analysis.

Data Collection and Analysis—Data were collected on the mailed survey form from all 50 States. After being received by OTA, the data were summarized on a standardized form and sent back to the respondent for verification. For States with more than one respondent, all respondents were sent both a copy of their response summary and the summaries from the other respondents in their State. The verified (or corrected) data were used for the analysis. Information about budget and staff size was also collected, but because these items were not addressed consistently[2], budget and staff data were for the most part excluded from analysis. While specific budget data were not comparable, analysis of funding sources was conducted to examine the degrees of dependence of responding organizations on Federal, State, and private or other dollars. For this reason, only budget changes and sources are reported.

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[1] Followup phone conversations with respondents revealed that many thought this section of the survey meant to elicit responses regarding level of involvement in the *delivery* of these specific services, rather than involvement in research, planning, and development activities.

[2] Differences in State budgeting and recording procedures as well as differences in States' definitions of "rural" limited the amount and uniformity of financial data collected through the survey. Seven States did not respond to this section of the survey, and the remaining 43 used a variety of methods to determine the amount of their budget spent on rural health activities. Some respondents listed the entire State health budget; others computed the rural health budget as a percentage of the total State health budget according to the proportion of rural residents or rural counties in the State; and some States reported specific budget allocations for rural health initiatives.

Data from the States with more than one respondent were combined to reflect the total picture of State activities. For items requiring a single response (i.e., priorities, rankings, and ratings), a primary respondent was selected by the OTA staff based on their judgment regarding which respondent appeared most generally knowledgeable about the breadth of the State's activities.

For purposes of analyses, States were divided in three fashions. First, States were divided into four standard regions: Northeast, South, Midwest, and West (see app. F for the States included in each region). Second, States were classified as "more rural" or "less rural" depending on the percentage of their population residing in nonmetropolitan areas in 1986.[3] Third, States were divided according to whether the respondents in that State were reporting activities of an identified "office of rural health," or an office whose primary responsibility is to administer to the health needs of rural areas of the State.[4]

This survey does not provide a complete picture of State-conducted or State-funded rural health-related activities, but it does give us a basis for describing State activities. Respondents were often in specific bureaus, divisions, or sections of State departments of health, and did not always respond on behalf of the department or the State government as a whole. Rather, they tended to describe only the activities in which they were directly involved. Rural health-related activities of other State departments or agencies and independent activities of State universities and colleges (e.g., university-based offices of rural health or Area Health Education Centers) were for the most part not captured.[5] Chapter 4 includes a list of the entities in each State whose activities were reported in the survey response. The survey also did not attempt to determine: 1) the degree to which the respondents or their agencies were involved in any given activity; 2) the degree to which any particular activity was deemed effective, either by the organization itself or by outside individuals; or 3) the amount or source of funding for any specific activity. These limitations may affect the comparability of data among States.

The degree to which individual States identified "rural health" issues as separate from general health issues and addressed them in a targeted manner varied greatly from State to State. The survey did not prescribe a definition of "rural" for respondents, but left the definitional issue up to the individual States. What is considered "urban" in North Dakota may be considered "rural" in New Jersey or Pennsylvania. Some of the more urban States may not identify rural health as a specific issue because such a small proportion of their population is affected, while some of the more rural States may not regard "rural health" as a separate set of issues because most of their population is rural. As a result, some of the activities listed by respondents were not specifically targeted to rural areas, but were provided to the State as a whole. These differences may also affect the comparability of State data.

OTA'S 1989 Survey of States on Health Personnel Shortage and Medically Underserved Areas

A second OTA survey was designed to examine State activity and satisfaction with the Federal designation of health manpower shortage areas (HMSAs) and medically underserved areas (MUAs). The questionnaire was reviewed by 10 people familiar with shortage area designations and was subsequently revised based on their comments (a copy of the questionnaire follows the methods section in this appendix). In July 1989 OTA mailed the questionnaire to the individual in each State responsible for designating health personnel shortages and medically underserved areas.[6] Respondents were encouraged to consult with other involved parties in their States when responding to the questionnaire. Forty-five of fifty States returned questionnaires—a 90 percent response rate.[7] (No list of respondents to this survey is included in this appendix because some responses were confidential.)

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[3] "More rural" States (those with more than 50 percent of their population residing in nonmetropolitan areas) are Idaho, Vermont, Montana, South Dakota, Wyoming, Mississippi, Maine, West Virginia, North Dakota, Arkansas, Iowa, Alaska, Kentucky, Nebraska, and New Mexico. All other States are considered "less rural".

[4] A State was identified as having an office of rural health if a) the name of one or more of the responding organizations within that State included the term "rural", or b) the organization was otherwise known to have a mission primarily related to rural health. States *with* offices of rural health (hereafter referred to as "ORH States") were: Arizona, California, Connecticut, Goergia, Nebraska, Nevada, New Mexico, North Carolina, North Dakota, Oregon, Texas, and Utah. All other States were classified as "non-ORH States." States with offices of "local" or "community" health were not classified as "ORH States," although the roles of these offices may be similar to the role of an office of rural health.

[5] In some States, AHECs operating primarily on State funding and university-based offices of rural health with State budget authority were included if they had been identified as appropriate respondents during the identification process.

[6] The list of respondents was based in part on a list supplied by the Office of Shortage Designation, Bureau of Health Care Delivery and Assistance. Other respondents were identified through phone calls to State health department officials.

The goals of OTA's survey were to learn:

- how satisfied States were with Federal designation criteria and processes;
- if and why interest in Federal designations had increased or decreased over the last 5 years;
- if States were using their own health personnel shortage areas or medically underserved area designations and, if so, how they were used;
- if States had sufficient resources to monitor health personnel shortage and medically underserved areas; and
- what Federal programs were perceived to have had the most positive effects on shortage and underserved areas.

Data analysis included variable frequencies and some regional comparisions.

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[7] California, Connecticut, Iowa, Massachusetts, and North Dakota did not return questionnaires. Wyoming was also excluded from the survey analysis because, as of June 1988, the position responsible for HMSA/MUA designations was cut and it has since been left to individual counties and hospitals to do their own designations.

List of Respondents to OTA's 1988 Survey of State Rural Health Activities

NOTE: The first respondent listed under each State was the "primary respondent", whose responses to the ranking and rating sections were used to express State rural health issues and priorities.

"*" indicates the entity whose activities are reported in the survey response. Budget data may not be reported for the same entity, but for a more specific division.

"**" indicates the person who completed the questionnaire.

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SURVEY OF STATE RURAL HEALTH ACTIVITIES

Spring 1988

Office of Technology Assessment
U.S. Congress
Washington, D.C. 20510-8025

Conducted by the Office of Technology Assessment
U.S. Congress

SURVEY OF STATE RURAL HEALTH ACTIVITIES

INSTRUCTIONS

1. READ OVER THE SURVEY CAREFULLY. If you have any questions, contact Leah Wolfe or Marc Zimmerman at the Office of Technology Assessment, Health Program, U.S. Congress, Washington, D.C. 20510-8025 (202/228-6590).

2. Please feel free to attach separate sheets whenever more room is needed for a response.

3. Please note that for each item in the ACTIVITIES section, we are interested only in activities your organization is CURRENTLY involved in OR has been involved in DURING THE PAST 3 YEARS.

4. Please make use of the "other" categories throughout the survey to capture any activities/programs that we have not included in our checklists. Don't forget to describe these other activities in the spaces provided.

5. Please enclose any representative literature/publications you may have that will help describe your activities/programs in greater detail, and feel free to reference this literature at any point in the survey (e.g., "See p. 26 of enclosed Annual Report for description of our demonstration projects."). A postage-paid envelope has been provided for this purpose.

6. When you have finished, please enclose the completed questionnaire as well as any related literature in the postage-paid envelope. Please return the survey by ______________________.

THANK YOU FOR YOUR TIME AND COOPERATION.

I. GENERAL DESCRIPTION

Organization Name: ______________________

Address: ______________________

____

____

Phone: ________/______________

Name/Title of director: ______________________

Name/Title of other key contact: ______________________

Name/Title of person completing survey: ______________________

Year established: ______________________

Type of organization:

______ State Government-based

______ University-based

______ Private/non-profit

______ Other (describe) ______________________

____

Staffing and Funding:

(If rural health activities are only part of your organization's responsibilities, please make the following estimates based on those activities alone.)

Number of people on staff: __________ **FTE (include professional, administrative, support)**

Total annual budget for rural programs (include federal, state, local, private, and fee-for-service income):

FY 87: $ ______________________

FY 88: $ ______________________

FY 89: $ ______________________

Breakdown:

_____**% Federal funding**

_____**% Local public funding**

_____**% State funding**

_____**% Fee-for-service income**

_____**% Private funding (e.g., foundation grants)**

Please list private funding sources: ______________________

____

____

____

PLEASE CONTINUE ON NEXT PAGE

1. GENERAL DESCRIPTION (CONTINUED)

A) What are your organization's rural health objectives? (Include your official mandate, if applicable.):

B) Was your organization established on the authority of State legislation or through an administrative action?

C) Where within the organizational structure of the State government are you located? (Please provide an organizational chart if available.) If you are not a State agency, what is your relationship to the State government?

PLEASE CONTINUE ON NEXT PAGE

2. ACTIVITIES

Please check those rural health activities below in which your organization has been **DIRECTLY** involved **DURING THE PAST 3 YEARS**. If your organization engages in/has engaged in any activities that are not listed here, please check "other" and describe these activities in the space provided.

A: PROVIDER RECRUITMENT/PLACEMENT

____ **NO, we have not done any provider recruitment or placement in the past 3 years.**
If NO, are there any other agencies/organizations in your State that do?
Please give names: ____
____

____ **YES, we engage/have engaged in the activities indicated below:**

Indicate # of providers PLACED OVER THE PAST 3 YEARS:
(please put "0" if you recruited but did not place anyone)

____ **M.D.'s/D.O.'s** ____ **Physician Assistants**
____ **R.N.'s** ____ **Mental Health Professionals**
____ **Nurse Practitioners**

*** Other (Please specify types and give # PLACED OVER THE PAST 3 YEARS - e.g., L.P.N.'s, Physical Therapists, Pharmacists):**

____ ____________________ ____ ____________________
____ ____________________ ____ ____________________

Recruitment methods (check all that apply):

____ **Loan forgiveness/repayment programs (please describe):** ____________________
____
____ **State scholarships in exchange for service in rural areas**
____ **Other financial incentives:** ____________________
____
____ **Placement service**
____ **Other:** ____________________
____

PLEASE CONTINUE ON NEXT PAGE

2. ACTIVITIES (CONTINUED)

B: FINANCIAL ASSISTANCE TO LOCAL ORGANIZATIONS

____ NO, we have not provided any financial assistance during the past 3 years.
If NO, are there any other agencies/organizations in your State that do?
Please give names: ____
____

____ YES, we have provided/provide the types of financial assistance checked below:

Type of assistance:	Recipient: (e.g., rural communities, local organizations, educational institutions)
____ Loans (non-student)	________________________ ________________________
____ Direct subsidy	________________________ ________________________
____ Matching funds	________________________ ________________________
____ Other (describe)	________________________ ________________________

C: TECHNICAL ASSISTANCE

____ NO, we have not provided any technical assistance during the past 3 years.
If NO, are there any other agencies/organizations in your State that do?
Please give names: ____
____

____ YES, we have provided/provide the types of technical assistance checked below:

(1) ____ HMSA/MUA/MUP designations

(2) Assistance to rural communities

____ Statewide rural health needs assessment
Date of last Statewide assessment: ____________________
____ Other needs assessments (describe) ______________________________
____
____ Community Board development
____ Grant application assistance
____ Program planning
____ Resource identification
____ Other: ____
____

PLEASE CONTINUE ON NEXT PAGE

2. ACTIVITIES, C: TECHNICAL ASSISTANCE (CONTINUED)

(3) Assistance to rural health facilities/providers

____ Facility development/construction consultation
____ Grant application assistance
____ Management assistance
____ Other: ____
____

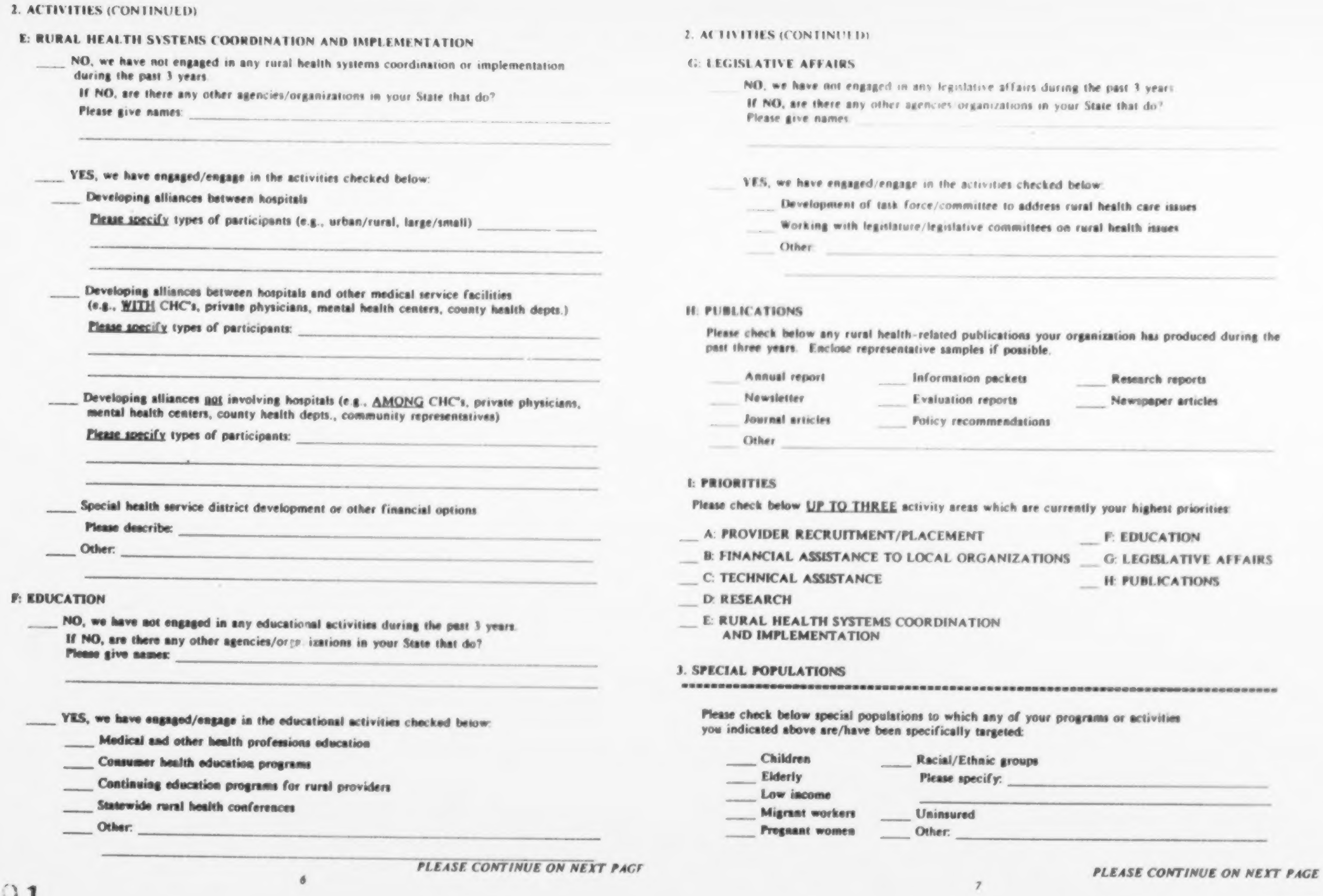
D: RESEARCH

____ NO, we have not done any rural health research in the past 3 years.
If NO, are there any other agencies/organizations in your State that do?
Please give names: ____
____

____ YES, we have done/are doing research on the following topics (check all that apply):

____ Health personnel
____ Health services utilization
____ Health status (e.g., morbidity & mortality)
____ Health systems coordination
____ Insurance coverage in rural population
____ Medical liability insurance costs/availability
____ New technology (e.g., diffusion, utilization)
____ Quality of care
____ Rural hospitals
____ Other: ____
____
____

PLEASE CONTINUE ON NEXT PAGE



2. ACTIVITIES (CONTINUED)

E: RURAL HEALTH SYSTEMS COORDINATION AND IMPLEMENTATION

____ NO, we have not engaged in any rural health systems coordination or implementation during the past 3 years.
If NO, are there any other agencies/organizations in your State that do?
Please give names: ____

____ YES, we have engaged/engage in the activities checked below:

____ Developing alliances between hospitals
Please specify types of participants (e.g., urban/rural, large/small) ____________

____ Developing alliances between hospitals and other medical service facilities (e.g., WITH CHC's, private physicians, mental health centers, county health depts.)
Please specify types of participants: ____________

____ Developing alliances not involving hospitals (e.g., AMONG CHC's, private physicians, mental health centers, county health depts., community representatives)
Please specify types of participants: ____________

____ Special health service district development or other financial options
Please describe: ____________

____ Other: ____________

F: EDUCATION

____ NO, we have not engaged in any educational activities during the past 3 years.
If NO, are there any other agencies/organizations in your State that do?
Please give names: ____________

____ YES, we have engaged/engage in the educational activities checked below:

____ Medical and other health professions education
____ Consumer health education programs
____ Continuing education programs for rural providers
____ Statewide rural health conferences
____ Other: ____________

PLEASE CONTINUE ON NEXT PAGE

2. ACTIVITIES (CONTINUED)

G: LEGISLATIVE AFFAIRS

____ NO, we have not engaged in any legislative affairs during the past 3 years.
If NO, are there any other agencies/organizations in your State that do?
Please give names: ____________

____ YES, we have engaged/engage in the activities checked below:

____ Development of task force/committee to address rural health care issues
____ Working with legislature/legislative committees on rural health issues
____ Other: ____________

H: PUBLICATIONS

Please check below any rural health-related publications your organization has produced during the past three years. Enclose representative samples if possible.

____ Annual report
____ Newsletter
____ Journal articles
____ Information packets
____ Evaluation reports
____ Policy recommendations
____ Research reports
____ Newspaper articles
____ Other ____________

I: PRIORITIES

Please check below UP TO THREE activity areas which are currently your highest priorities:

__ A: PROVIDER RECRUITMENT/PLACEMENT
__ B: FINANCIAL ASSISTANCE TO LOCAL ORGANIZATIONS
__ C: TECHNICAL ASSISTANCE
__ D: RESEARCH
__ E: RURAL HEALTH SYSTEMS COORDINATION AND IMPLEMENTATION
__ F: EDUCATION
__ G: LEGISLATIVE AFFAIRS
__ H: PUBLICATIONS

3. SPECIAL POPULATIONS

Please check below special populations to which any of your programs or activities you indicated above are/have been specifically targeted:

____ Children
____ Elderly
____ Low income
____ Migrant workers
____ Pregnant women
____ Racial/Ethnic groups
Please specify: ____________
____ Uninsured
____ Other: ____________

PLEASE CONTINUE ON NEXT PAGE

4. MAJOR RURAL HEALTH CARE DELIVERY ISSUES IN YOUR STATE

GENERAL ISSUES: The following is a list of health care **DELIVERY** issues in rural areas. Please rank each of the six issues by severity of the issue in your State, using "1" to indicate the biggest problem area, "6" the smallest problem area. List and rank any other health care **DELIVERY** issues in the space provided, expanding the ranking scale as necessary. **Please use each number only once.**

________ Health provider issues (e.g., shortages, recruitment/retention)
Please specify: ______________________________

________ Medical liability insurance costs/availability

________ Meeting the needs of special populations (e.g., elderly, migrant workers, high-risk pregnancies)

________ Payment issues (e.g., Medicare urban/rural differential, insurance coverage)

________ Quality of care

________ Services issues (e.g., hospital closures & restructuring, systems planning & development

________ Other: ______________________________

SPECIFIC SERVICES: Using the scale described below please indicate the amount of attention your organization is CURRENTLY devoting to each of the following:

RATING SCALE: 0 . . . . . . 1 . . . . . . 2 . . . . . . 3 . . . . . . 4 5
devoting NO attention to this — devoting MOST attention to this

(You may use each number more than once . . .)

_____ Acute health care
_____ Child health care
_____ Emergency medical care
_____ Health promotion/Disease prevention

_____ Home health care
_____ Long term care
_____ Mental health care
_____ Obstetrics care
_____ Other: ______________________________
_____ Other: ______________________________

PLEASE CONTINUE ON NEXT PAGE

5. QUESTIONS

Please describe briefly (A) three CURRENT activities and programs in your State that have been effective in addressing rural health issues; and B) three activities or programs you would like to see in your State IN THE FUTURE to address these issues.

A) Current Activities (3):

B) Future Activities (3):

THANK YOU VERY MUCH FOR YOUR TIME AND COOPERATION.

Please return survey by ______________ to: Leah Wolfe, Health Program, Office of Technology Assessment, U.S. Congress, Washington, DC 20510-8025.

July 24, 1989

CONGRESSIONAL OFFICE OF TECHNOLOGY ASSESSMENT'S
SURVEY OF STATES ON
HEALTH PERSONNEL SHORTAGE AND
MEDICALLY UNDERSERVED AREA DESIGNATIONS

Date: ______

Name/Title of person completing survey: ______

Name/Title of other contact(s): ______

Organization Name: ______
Address: ______
Phone: ______

A. Primary Care Health Personnel Shortage Area Designations

1. How satisfied are you with the criteria used to designate Federal Primary Care Health Manpower Shortage Areas (HMSAs)?

______**Very satisfied**
______**Satisfied**
______**Dissatisfied**
______**Very dissatisfied**
______**Don't know**
______**No opinion**

Please describe why you are satisfied or dissatisfied.

a. What changes would you suggest in the Primary Care HMSA criteria that would improve identification of primary care personnel shortage areas?

b. What aspects of the Primary Care HMSA criteria are good and should be retained?

c. Describe any problems that you have had in designating primary care personnel shortage areas in the rural (i.e., nonmetropolitan) areas of your State (e.g., designations in frontier areas)

2. To what extent do you agree with the following statements:

a. A primary care HMSA's priority grouping (i.e., group 1-4) is a good measure of the HMSA's relative degree of primary care health personnel shortage.

______**Strongly agree**
______**Agree**
______**Disagree**
______**Strongly disagree**
______**Don't know**
______**No opinion**

Comment:

b. Allocation of Federal resources is correlated to HMSA priority groups.

______**Strongly agree**
______**Agree**
______**Disagree**
______**Strongly disagree**
______**Don't know**
______**No opinion**

Comment:

3. Please briefly describe trends in HMSA designation activity in your State's metropolitan and nonmetropolitan areas since 1980.

4. Since 1985, has the demand for Federal Primary Care HMSA designation increased, decreased or remained the same for metro and nonmetropolitan areas in your State?

Demand for Primary Care HMSA designation	Metropolitan	Nonmetropolitan
Increased very much	______	______
Increased somewhat	______	______
Remained the same	______	______
Decreased somewhat	______	______
Decreased very much	______	______
Don't know	______	______
Does not apply	______	______

5. Please indicate whether each of the following factors has increased, decreased or had no effect on the demand for Federal Primary Care HMSA designations in your State since 1985.

	Factor has:			
Factor:	Increased demand	Decreased demand	Had no effect	Don't Know
a. Need for NHSC personnel	______	______	______	______
b. Availability of NHSC personnel	______	______	______	______
c. Rural Health Clinics Act	______	______	______	______
d. Medicare physician bonus payment	______	______	______	______
e. State programs linked to HMSA designation	______	______	______	______
f. Other______________________	______	______	______	______
g. Other______________________	______	______	______	______

6. Has your State filed any Primary Care HMSA applications since 1985?

______Yes
______No (If no, skip to question 8.)
______Don't know (If don't know, skip to question 8.)

7. In general, what is your level of satisfaction with how Federal Primary Care HMSA applications have been processed?

______Very satisfied
______Satisfied
______Dissatisfied
______Very dissatisfied
______Don't know
______No opinion

If satisfied or dissatisfied, what aspect(s) of the application process led to your satisfaction or dissatisfaction?

____
____
____

8. If any Federal Primary Care HMSA designations have been reviewed since 1985, indicate your general level of satisfaction with the Federal review process.

______Very satisfied
______Satisfied
______Dissatisfied
______Very dissatisfied
______Don't know
______Does not apply, no review
______No opinion

If satisfied or dissatisfied, what aspect(s) of the review process have led to your satisfaction or dissatisfaction?

____
____
____

9. Is your State defining shortage areas for physician specialties (e.g., OB/Gyn) or for non physician health care providers (e.g., nurses)?

______Yes
______No
______Don't know

If yes, specify the type of providers for which shortage areas are defined and briefly describe designation criteria (or, if available, attach).

____
____
____
____

B. Medically Underserved Areas (MUA)

1. How satisfied are you with the criteria used to designate Federal Medically Underserved Areas (MUAs)?

______Very satisfied
______Satisfied
______Dissatisfied
______Very dissatisfied
______Don't know
______No opinion

Please describe why you are satisfied or dissatisfied.

____
____
____
____

a. What changes would you suggest in the Federal MUA criteria that would improve identification of medically underserved areas?

____

b. What aspects of the MUA criteria are good and should be retained?

____

c. Describe any problems that you have had in designating medically underserved areas in the rural (i.e., nonmetropolitan) areas of your State (e.g., designations in frontier areas)

____

2. Please briefly describe trends in MUA designation activity in your State's metropolitan and nonmetropolitan areas since 1980.

____

3. Since 1985, has the demand for Federal MUA designation increased, decreased or remained the same for metro and nonmetropolitan areas in your State?

MUA applications	Metropolitan	Nonmetropolitan
Increased very much	______	______
Increased somewhat	______	______
Remained the same	______	______
Decreased somewhat	______	______
Decreased very much	______	______
Don't know	______	______
Does not apply	______	______

4. Please indicate whether each of the following factors has increased, decreased or had no effect on the demand for Federal MUA designations in your State since 1985.

	Factor has:			
Factor:	Increased demand	Decreased demand	Had no effect	Don't Know
a. Need for CHCs	______	______	______	______
b. Availability of CHC funds	______	______	______	______
c. Rural Health Clinics Act	______	______	______	______
d. State programs linked to MUA designation	______	______	______	______
e. Other______________	______	______	______	______
f. Other______________	______	______	______	______

5. Has your State filed any MUA applications since 1985?

______Yes
______No (If no, skip to question 7.)
______Don't know (If don't know, skip to question 7.)

6. In general, what is your level of satisfaction with how Federal MUA applications are processed?

______Very satisfied
______Satisfied
______Dissatisfied
______Very dissatisfied
______Don't know
______No opinion

If satisfied or dissatisfied, what aspect(s) of the application process led to your satisfaction or dissatisfaction?

____

7. What is your level of satisfaction with the frequency of Federal MUA review?

______Very satisfied
______Satisfied
______Dissatisfied
______Very dissatisfied
______Don't know
______No opinion

Please comment on why satisfied or dissatisfied and if dissatisfied, specify how often the MUAs should be reviewed and why.

____

8. To what extent do you agree or disagree with this statement?

Different criteria should be used when reviewing Federal MUAs that have established Federal services (e.g., Community Health Centers) in the area.

______Strongly agree
______Agree
______Disagree
______Strongly disagree
______Don't know
______No opinion

Comment:

____

C. **General Comments on Shortage Areas and Medically Underserved Areas**

1. Does your State have health personnel distribution programs that use some type of shortage area designation?

______Yes
______No (If no, skip to Question 2.)
______Don't know (If don't know, skip to Question 2.)

If yes, please check all State health personnel distribution programs present in your State, and for each checked program indicate whether the Federal HMSA, MUA or State criteria are used to implement the program. In the space provided below, briefly describe any State designation criteria that are used (or, if available, attach).

	Program Present in State?		Shortage Designation Used		
			Federal		State
STATE DISTRIBUTION PROGRAMS:	Yes	No	HMSA	MUA	Designation
1. Educational Programs:					
a. AHECs	___	___	___	___	___
b. Targeted Primary Care training opportunities (e.g., residencies)	___	___	___	___	___
c. Seat purchases	___	___	___	___	___
d. Preceptorships	___	___	___	___	___
e. Other educational program ______________	___	___	___	___	___
2. Financial Incentives During Training					
a. Service-contingent loans and scholarships	___	___	___	___	___
b. Other loans	___	___	___	___	___
c. Other scholarships	___	___	___	___	___
d. Other financial incentive ______________	___	___	___	___	___
3. Aid in Practice					
a. Placement	___	___	___	___	___
b. Guaranteed income	___	___	___	___	___
c. Loans	___	___	___	___	___
d. Health professions school loan repayment	___	___	___	___	___
e. Malpractice subsidy	___	___	___	___	___
f. Other aid in practice ______________	___	___	___	___	___
4. Other Program(s)					
a. ______________	___	___	___	___	___
b. ______________	___	___	___	___	___

Please briefly describe any State designation criteria that are used (or, if available, attach).

____
____
____
____
____

a. If your State uses a designation other than the Federal HMSA or MUA designations to identify shortage areas:

Why doesn't your State use the Federal HMSA or MUA designation for these areas?

____
____
____

2. In your opinion, are there areas or populations in your State that have health personnel shortages or are medically underserved but are not designated as Federal HMSAs or MUAs?

_______No
_______Yes
_______Don't know
_______No opinion

If Yes, please describe these areas/populations and why they have not been designated.

____
____
____
____

If Yes, are any of these areas/populations are designated as State health personnel shortage or medically underserved areas?

____
____
____
____

3. In your opinion, are there areas/populations that are inappropriately designated as Federal HMSAs or MUAs (i.e., areas/populations that do not have a shortage of health personnel or that are not medically underserved)?

_______No
_______Yes
_______Don't know
_______No opinion

If Yes, please explain why the areas' designation(s) are inappropriate.

4. In your opinion, how effective have the following Federal program(s) been in improving the availability of health services in your State's nonmetropolitan health personnel shortage and medically underserved areas?

VE = Very Effective
E = Effective
I = Ineffective
VI = Very ineffective
NF = Not familiar with Federal program
DK = Don't know
NO = No opinion

	Effectiveness						
Federal programs	VE	E	I	VI	NF	DK	NO
National Health Service Corps	___	___	___	___	___	___	___
Support of Primary Care educational programs	___	___	___	___	___	___	___
AHEC activities	___	___	___	___	___	___	___
Community Health Centers	___	___	___	___	___	___	___
Rural Health Clinics Act	___	___	___	___	___	___	___
Medicare physician payment bonus	___	___	___	___	___	___	___
Private loan repayment programs (other than NHSC)	___	___	___	___	___	___	___
Other (specify)______________	___	___	___	___	___	___	___
Other (specify)______________	___	___	___	___	___	___	___

5. HMSA and MUA designations were originally designed to meet the needs of the NHSC and CHC programs. In your opinion, how appropriate are these designations for other Federal programs such as the Rural Health clinics Act and Medicare incentive payments?

______Very appropriate
______Appropriate
______Inappropriate
______Very inappropriate
______Don't know
______No opinion

6. Does your state delineate primary care service areas?

______Yes
______No
______Don't know

If Yes, please briefly describe how the areas are defined
____
____
____

7. Does your State conduct any special surveys of primary care providers to monitor shortage areas/underserved areas or as part of your HMSA/MUA designation activities?

______Yes
______No
______Don't know

If Yes, please briefly describe the surveys
____
____
____

8. Has the withdrawal of Federal planning resources (e.g., State Health Planning and Development Agency (SHPDA) funds) had a positive, negative, or no effect on your State's ability to prepare requests for HMSA/MUA designation?

_____ Very positive (describe)______________________
_____ Somewhat positive (describe)______________________
_____ Somewhat negative (describe)______________________
_____ Very negative (describe)______________________
_____ No effect

9. In general, are your State/Federal resources adequate for maintaining an accurate and up-to-date set of health personnel shortage areas and medically underserved areas?

______Yes
______No
______Don't know
______No opinion

If No, please describe what resources are inadequate
____
____
____

10. If available, please send us any State maps you have prepared that show the location of any of the following: Federal HMSAs, MUAs, State-designated shortage areas, CHCs, NHSC sites, certified Rural Health Clinics, and/or primary care service areas.

D General Comments

Please provide any additional general comments that you have about the designation of primary care personnel shortage areas or medically underserved areas that have not been covered adequately by this questionnaire?

Comments:

Please return this questionnaire by August 4, 1989 in the self-addressed envelope enclosed or send to:

Rita Hughes
Office of Technology Assessment
Health Program
600 Pennsylvania Avenue, S.E.
Washington, D.C. 20003

Appendix E

Rural Health Care Projects Funded by the Robert Wood Johnson Foundation and the W.K. Kellogg Foundation[1]

Private foundations have played a significant role in promoting innovative rural health care projects. These foundations have intended to establish the basis for lasting, effective change through creative project planning and design, research and experimentation, education and training, and encouraging the coordination of community resources. Two of the major foundations that have provided innovative support for rural health care programs are The Robert Wood Johnson (RWJ) Foundation of Princeton, NJ and the W.K. Kellogg Foundation of Battle Creek, MI. Recent relevant projects supported by the RWJ and Kellogg foundations are described briefly below.

The Robert Wood Johnson Foundation

The Robert Wood Johnson Foundation, established in 1972, in recent years has focused much of its efforts on building and strengthening the infrastructure of the rural health care system. The following describes those projects that are most specifically focused in this area.

- *Rural-oriented training activities* supported by the Foundation in the early 1970s included: scholarship support to encourage students from underserved areas to go into medicine (a precursor of the National Health Service Corps); and institutional support to develop primary care training programs for physicians, physician assistants, child health practitioners, nurse practitioners, family care assistants, and emergency care providers who represented those practitioners most needed in underserved areas.
- *The Rural Practice Project* was launched in 1975 to demonstrate how medical practices might be developed in rural areas so as to meet both the health care needs of the community, and the financial and professional needs of rural physicians. Foundation funds were used to cover the operating deficits of the 14 model rural practices for a period of 4 years. Some sites were unable to achieve financial stability, and several had considerable staff turnover in physicians. The availability of a hospital to a practice was found to be critical to financial and professional survival and development.
- *The Rural Infant Care Program*, initiated in 1979, funded 10 medical schools to work with State health departments in improving perinatal care in isolated rural areas. The objective of this program was to develop and enhance linkages between rural health services and tertiary medical centers and create regional networks of perinatal care. Although some of the medical services under this program were cut back or reorganized after Foundation funding ended, the regional relationships and services in many States that showed clear improvements in maternal and infant care remain substantially in place.
- *The Rural Hospital Program of Extended Care Services* was launched in 1981 to encourage small rural hospitals to develop swing-bed services.[2] Five State hospital associations were funded to develop the capability to provide technical assistance and education to interested rural hospitals. The Foundation subsequently funded 26 individual hospitals to implement their particular swing-bed models and funded an evaluation of the program, which found positive benefits both to the hospitals and their communities.
- *Rural Efforts To Assist Children at Home*, a project that began in 1984, was funded in cooperation with the Florida Department of Health and Rehabilitative Services and the University of Florida Medical Center. Under the program, 20 nurses from rural communities received special training to assist university-based pediatric specialists and local physicians in providing routine management of chronically ill children in the rural communities where they lived. The nurses also worked with schools and families to assist them in meeting the medical and rehabilitative needs of the children. Florida subsequently extended the program statewide.
- *The Hospital-Based Rural Health Care Program*, which began in 1987, funds consortia of rural hospitals. Its goal is to allow rural hospitals to explore strategies to strengthen their financial positions, to explore alternatives to closing (e.g., conversions and diversification) and, where applicable, to help them to close. The program emphasizes the development of regional affiliations to enable appropriate referrals outside the community, and to enable closure and conversion efforts to be examined within a regional context. Thirteen sites were funded and some 185 hospitals participate in the program.
- In July, 1989, the Foundation awarded grants to 13 community health care projects run by and for American Indians and Alaska natives. Included are

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[1] Information for this appendix was provided by Nancy Barrand of The Robert Wood Johnson Foundation and Helen Grace of the W.K. Kellogg Foundation.

[2] See ch. 6 for a discussion of hospital swing bed services.

projects designed to prevent alcohol and drug abuse, control diabetes, reduce domestic violence, and improve maternal and infant health among tribal populations in eight States.

The W.K. Kellogg Foundation

The W.K. Kellogg Foundation, established in 1930, concentrates most of its health-related philanthropy in the areas of community-based, problem-focused health services. Rural efforts focus on new collaborative approaches for health services delivery, rural leadership development, and training of local government officials. Recent major Foundation projects pertaining fully or in part to rural health care are described below.

- A 3-year project in northeastern Montgomery County, MD, which began in 1986, funded the creation of a community-wide network of volunteers to provide support services not available to isolated elderly. Secondary goals were to transfer a share of the responsibility for care of the elderly from the government to the community, and to provide meaningful social roles for adolescents and elderly through an intergenerational volunteer network. Preliminary results suggest that the volunteer services have decreased the need for some hospital and nursing home services and provided relief to families.
- In 1989, the University of Illinois instituted a 3-year project whose goal is to train community-based, paraprofessional, primary care outreach workers to link people in need of services with health care providers. The project is oriented to both rural and inner-city residents.
- The Medical College of Georgia, in 1988, began a 3-year project to reduce infant mortality and improve maternal and infant health in rural east central Georgia. Activities include establishing a case management system for high-risk newborns using an electronic database and discharge planning and infant tracking program and using a nurse-managed mobile health unit to promote timely access to health care for mothers, infants, and children in a medically underserved rural area.
- In 1988, the Children's Defense Fund started a 3-year project to reduce infant mortality and morbidity and adolescent pregnancy in rural Marlboro County, SC. The project used outreach workers to provide health education and promote maternal compliance for self-care of the mother and care of her infant.
- A 4-year project started by Mississippi's Alcorn State University, in 1987, is intended to improve access to health services for adolescents by providing mobile health screening and services for youth in nine rural and urban communities in Mississippi. Target communities are characterized by high rates of teenage pregnancy, trauma, substance abuse, sexually transmitted diseases, high levels of poverty and unemployment, few numbers of health care facilities and personnel, and poorly coordinated social services.
- In 1985, the University of North Dakota and Lutheran Hospitals and Homes Society began a 5-year project (the Affordable Rural Coalition for Health (ARCH)). The project's purpose is to reorganize health services to develop models of comprehensive, integrated, cost-effective health care delivery in several small communities in North Dakota, Colorado, and Wyoming. Such restructuring may take into account both horizontal (hospital to hospital) and vertical (hospital to nursing home to home care, etc.) relationships among major health care providers. A second goal is the establishment of a future-oriented, participatory process for communities wishing to be involved in designing an optimal rural health care system.
- Initiated in 1983, a regionalized demonstration project at the University of Washington School of Medicine is designed to restructure the services provided by selected rural hospitals in the States of Washington, Alaska, Montana, and Idaho. It is intended to demonstrate ways rural hospitals in this region can assess and modify their financial structure and the types, quantity, and quality of services provided.
- A joint project with the National Rural Health Association and the Hospital Research and Education Trust, which started in 1987, includes 13 rural community-oriented primary care demonstrations for the improvement of community-based health services. The project awarded grants to a variety of community health and human service organizations (e.g., group practices, community hospitals, public health departments, and social service agencies), who work with community leaders to define community-based health service needs and implement necessary reorganization.
- The 6-year Alliance for Rural Health Management Improvement project, which began in 1982, developed a 7-part rural health care improvement program for rural hospitals in 13 western States. The project provided training and job development for small hospital executives and trustees; developed a volunteer consulting corps of retired health care executives; encouraged rural health care/small business alliances and joint practice among rural hospitals; improved quality assurance committees in rural health care settings; and provided rural postgraduate fellowships to recent health administration graduates.

- Two projects at the University of Alabama at Birmingham have focused on improving education of allied health professionals. The first project, which began in 1976, established and disseminated a curriculum to train allied health generalists who could perform a variety of basic tasks (e.g., assist in patient examinations, administer medications, and keep medical records). A second project, which began in 1987, involves a series of clearinghouse activities to document multiskilled models throughout the country, develop a consultancy program of experienced educators and practitioners, and disseminate information on multiskilled practice, including an updated, state-of-the-art publication and directory.
- In 1987, the National Association of Community Health Centers (NACHC) began a 3-year project to produce well-informed leaders for federally funded community and migrant health centers (urban and rural). The program selects qualified candidates to be matched with health center preceptor sites. On completion of the residencies, individual residents will be matched with health centers where they will be prepared to assume management positions.
- A 4-year project by the University of Missouri, started in 1987, is developing support services to assist the elderly to remain in home settings in their community. The "Center On Rural Elderly" serves as a resource center for health and human service professionals interested in serving elderly who reside in small towns and rural communities. It disseminates educational materials on topics such as preventive health services, support for caregivers, and intergenerational relations between elderly persons and younger generations. In addition, Center staff are producing a planning guide to assist in the development and implementation of educational programs for local elderly groups and the development of programs to enhance the community involvement and leadership of recently retired persons.

Appendix F

Census and DHHS Regions

Census Regions

Northeast

New England
Connecticut
Maine
Massachusetts
New Hampshire
Rhode Island
Vermont

Mid Atlantic
New Jersey
New York
Pennsylvania

South

South Atlantic
Delaware
Florida
Georgia
Maryland
North Carolina
South Carolina
Virginia
West Virginia

East South Central
Alabama
Kentucky
Mississippi
Tennessee

West South Central
Arkansas
Louisiana
Oklahoma
Texas

Midwest

West North Central
Iowa
Kansas
Minnesota
Missouri
Nebraska
North Dakota
South Dakota

East North Central
Ohio
Indiana
Illinois
Michigan
Wisconsin

West

Mountain
Arizona
Colorado
Idaho
Montana
Nevada
New Mexico
Utah
Wyoming

Pacific
Alaska
California
Hawaii
Oregon
Washington

U.S. Department of Health and Human Services (DHHS) Regions

Region I

Connecticut
Maine
Massachusetts
New Hampshire
Rhode Island
Vermont

Region II

New Jersey
New York

Region III

Delaware
Maryland
Pennsylvania
Virginia
West Virginia

Region IV

Alabama
Florida
Georgia
Kentucky
Mississippi
North Carolina
South Carolina
Tennessee

Region V

Illinois
Indiana
Michigan
Minnesota
Ohio
Wisconsin

Region VI

Arkansas
Louisiana
New Mexico
Oklahoma
Texas

Region VII

Iowa
Kansas
Missouri
Nebraska

Region VIII

Colorado
Montana
North Dakota
South Dakota
Utah
Wyoming

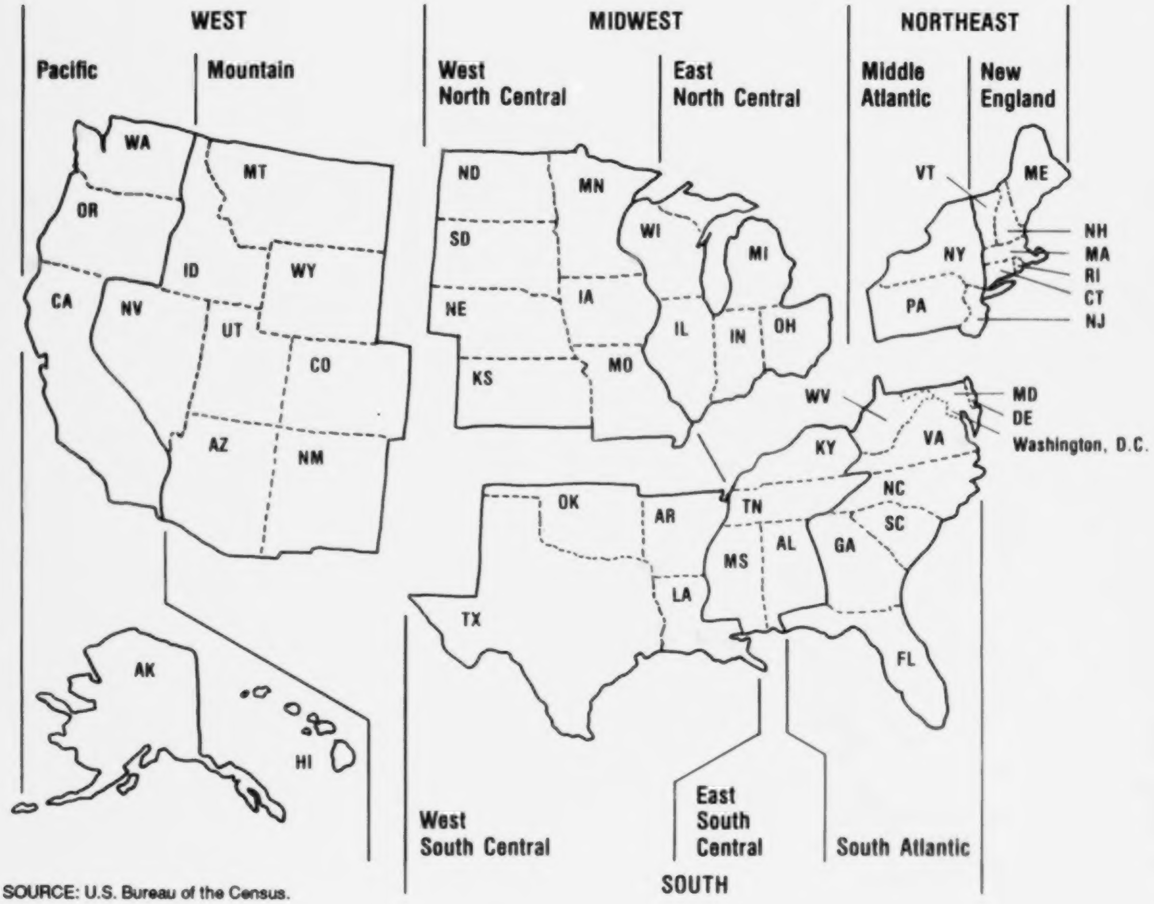
Region IX

Arizona
California
Hawaii
Nevada
Guam

Region X

Alaska
Idaho
Oregon
Washington

Figure F-1—U.S. Showing Census Divisions and Regions


WEST
Pacific
Mountain
MIDWEST
West North Central
East North Central
NORTHEAST
Middle Atlantic
New England
WA
OR
CA
MT
ID
NV
WY
UT
CO
AZ
NM
AK
HI
ND
SD
NE
KS
MN
IA
MO
WI
MI
IL
IN
OH
VT
ME
NH
MA
RI
CT
NJ
NY
PA
WV
MD
DE
Washington, D.C.
KY
VA
OK
AR
TN
NC
SC
GA
AL
MS
LA
TX
FL
West South Central
East South Central
South Atlantic
SOUTH

SOURCE: U.S. Bureau of the Census.

Appendix G
Field Workshops[1]

During the course of the Rural Health study, the Office of Technology Assessment (OTA) held three field workshops. At these workshops, invited participants presented problems and suggested strategies and discussed them with attending OTA staff, advisory panel members, and observers.

The first workshop, held on January 11, 1989 in Scottsdale, Arizona, addressed issues and strategic options for small, isolated hospitals; larger rural hospitals and those operating in more competitive environments; and rural hospitals in multihospital systems or other affiliations. On February 28, 1989, OTA held a workshop on health personnel issues, with a special emphasis on the needs of "frontier" areas, in Bismarck, North Dakota. Topics included training, recruitment, retention, and practice issues for rural health professionals. The third workshop, held on June 15, 1989 in Meridian, Mississippi, addressed issues related to providing primary care to rural populations, especially those in persistent poverty. Topics included payment and financing, access to care, and practice capacity and organization.

Summary of presentations from invited workshop participants follow.

Scottsdale, Arizona

Small, Isolated Hospitals

James Armstrong, President, Sierra Vista Hospital, Truth or Consequences, NM—Represents a 34-bed Adventist hospital in a community of 7,000. The next hospital is 75 miles away. The community has a large influx of tourists in the summer and semipermanent retirees in the winter. Seventy to eighty percent of the hospital's patients receive Medicare.

Problems—
- lost $500,000 last year, low Medicare reimbursement,
- 30 to 40 percent of population is going elsewhere for care,
- expanded need for elderly and emergency medical services (EMS) due to tourism and retirees,
- physician and nurse recruitment and retention,
- community slow to change.

Strategies—
- cut expenses or forego staff expansion,
- improve public image and perceived quality,
- air and ground transport in EMS network,
- trained six licensed practical nurses to registered nurses,
- educate physicians to maximize reimbursement.

Elton Summers, Administrator, Gila County General Hospital, Globe, AZ—Represents a 35-bed public (county) hospital in a town of about 7,000 people. There is a competing nonprofit hospital about 6 miles away.

Problems—
- about $1 million in uncompensated care (out of $8 million total),
- seen as social service agency by community and county government,
- low occupancy rates.

Strategies—
- improve business management,
- long-term strategy to try to merge with competing hospital.[2]

Harold Brown, Chief Executive Officer (CEO), Prairie du Chien Memorial Hospital, Prairie du Chien, WI)—Represents a nonprofit hospital with 49 acute beds, swing beds, 4 skilled beds, 2 respite beds, home health, and hospice. The next hospital is 30 miles away and the next large hospital is 65 miles. The hospital was in the black last year. It has 62 percent occupancy in its acute care beds, which generated 57 percent of its revenue. Of the remaining revenue, 24 percent is from outpatient services.

Problems—
- access to capital for modernization and expansion,
- proposed prospective payment for ambulatory services would pay only 70 percent of x-ray costs and 67 percent of lab,
- regulations for many services are not sensitive to rural situation.

Strategies—
- maximized Medicare payments through high base year costs,
- diversifying from inpatient to outpatient services,
- developing local funding via foundation and fund-raising,
- report cards for doctors on handling cases and patients.

---

[1] All three workshop were arranged under contract by the National Rural Health Association. The meeting in Meridian, Mississippi was arranged by the National Rural Health Association with assistance from the National Association of Community Health Centers, the Mississippi Primary Care Association, and the Alabama Primary Health Care Association.

[2] In 1989, Gila County General Hospital announced plans to merge with the nearby nonprofit hospital, 49-bed Miami Inspiration Hospital.

Bill M. Welch, Administrator, Elko General Hospital, Elko, NV—Represents a 50-bed public hospital with no county subsidy. The service area is growing rapidly and now has 27,000 people, but the county's population density is still 1.6 per square mile. It is about 150 miles to the next hospital.

Problems—
- physician shortage acute,
- increasing accounts receivable,
- competition with urban hospitals outreaching into area,
- facility designed for inpatient services, but about 50 percent are outpatient services.

Strategies—
- intense community-based physician recruitment,
- using contract collection firm,
- local media campaign to retain market share,
- developing statewide rural hospital consortium,
- use consultants to help identify problems and planning with board.

Larger Rural Hospitals and Those in More Competitive Environments

Patrick Linton, CEO, Yavapai Regional Medical Center, Prescott, AZ—Represents a 129-bed hospital in a town of 25,000. Over 30 percent of the population is over 65 years old. About 54 percent of revenue is from Medicare and 9 percent is from Medicaid.

Problems—
- low rural payments from Medicare and resulting low morale,
- lack of access to capital,
- aging physical facility,
- high proportion of elderly.

Strategies—
- Geriatric Resource Center (foundation funded) to case manage patients and families,
- joined State federation of six hospitals to raise capital.

Steve Ward, Director, Shared Services & Outreach, St. Mary's Hospital, Grand Junction, CO—Represents a 294-bed rural referral center (RRC) in the mountains.

Problems—
- indigent care costs rising,
- competition from urban referral centers.

Strategies—
- favorable payments under RRC designation,
- considering transportation for physician care and other services,
- strong outreach and marketing program to solidify market.

Douglas Fonnesbeck, Administrator, Logan Regional Hospital, Logan, UT—Represents a 150-bed hospital that is a member of Intermountain Health, Inc. The community is growing and has a diversified economic base.

Problems—
- access to capital,
- deciding "what you are and what you are not,"
- Medicare reimbursement.

Strategies—
- business-based strategic planning,
- strong guest relations program,
- acute-care case management program.

Virginia Goodrich, Executive Vice President, New Mexico Hospital Association—Represents Rehoboth-McKinley Christian Health Care, Gallup, NM, created by the merger of a 41- and a 81-bed hospital. The current hospital has 74 acute care beds. The area has a multicultural population and a depressed economy.

Problems—
- competing, inefficient hospitals in the same town,
- large indigent population,
- Medicare reimbursement inadequate,
- training costs high due to multilingual requirements,
- red tape in working with Indian Health Service hospital,
- high accounts receivable,
- community image makes recruiting difficult.

Strategies—
- merged facilities with agreement to protect jobs for 1 year,
- cut 100 jobs after 1-year hiatus,
- easy merger of medical staffs helped bring harmony,
- methodical attention to and elimination of accounts receivable,
- serious planning effort for merged facility.

Rural Hospitals in Systems or Other Affiliations

James R. Beeler, Director of Planning & Marketing/Regional Operations, Samaritan Health Service, Phoenix, AZ—Represents system of 18 facilities (mostly leased or managed), of which 4 are hospitals ranging from 25 to 84 beds in size.

Problems—
- heavy subsidy of one 22-bed rural hospital,
- manpower recruitment and stabilization,
- physician issues,
- access to capital.

Strategies—
- converted troubled hospital to other uses,
- internal recruiting/locum tenens,
- joint venture with physicians in managed care plan,

- prescreening outreaching specialists,
- air transport of specialists to rural areas,
- pooled bond fund provides access to capital,
- local fundraising.

Keith Lundberg, Executive Director, Health Services Consortium, Seattle, WA—Represents a voluntary shared services consortium established in 1973 under the auspices of a large tertiary center. There are 15 rural community hospitals in the consortium.

Problems—
- low utilization,
- recruitment and retention of physicians.

Strategies—
- coordinated case management,
- focused referral relationships,
- developing physician leadership,
- tangible incentives for patient care relationships.

Carole Guinane, R.N., Asst. Vice President for Medical Staff Services, Parkview Episcopal Medical Center, Pueblo, CO—Parkview joined with Rose Medical Center in Denver to form the Rocky Mountain Health Alliance to provide a link for rural institutions and physicians to the resources at tertiary care facilities and garner referrals for the larger hospitals.

Problems—
- urban hospitals seen as "black hole" for referrals,
- rurals losing market share due to poor image,
- training and continuing education needs,
- few resources for new equipment and services.

Strategies—
- specialty physicians contract to return patients to rural physicians,
- training programs for rural doctors, nurses and administrators,
- inventory reduction program; equipment purchase and placement,
- grantswriting assistance,
- marketing and strategic planning assistance.

Gordon Russell, Administrator, Hi-Plains Hospital, Hale Center, TX—Represents the West Texas Independent Affiliated Hospitals, a group of about 30 rural hospitals that are about 40 miles apart covering an area the size of New York. The hospitals average 49 beds in size, and most are public.

Problems—
- not enough money, competitors have too much money,
- low Medicare reimbursement,
- isolation resulting in unsophisticated systems and resistance of change,
- peer Review Organization problems.

Strategies—
- board retreats,
- peer support visits to provide internal review and assistance,
- joint purchasing,
- management information system and cost report sharing.

Cathy Comito, Network Coordinator, Mercy Hospital Consortium, Des Moines, IA—Represents a consortium consisting of 10 rural hospitals within a 100-mile radius of Mercy Hospital in Des Moines. Eight of the hospitals are county; two are nonprofit. Five are managed by Mercy and five are affiliated.

Problems—
- isolation,
- inefficiency.

Strategies—
- local autonomy is key,
- no management fees are charged,
- training programs for all levels of personnel,
- hospitals purchase services from consortium,
- consortium-wide conferences for board and administrative staffs.

Bismarck, North Dakota

Physician Issues

Nelson Tilden, Ph.D., President, Medical Search Consultants, Inc., Overland Park, KS—Operates a small consulting firm that recruits physician, particularly for rural areas.

Problems—
- lifestyle expectations of young physicians often antithetical to rural practice,
- increasing numbers of women physicians whose spouses often have trouble finding positions in rural communities and who tend to have different practice styles and needs (e.g., more time with family, child care, etc.).

Strategies—
- revitalize the National Health Service Corps (NHSC),
- implement the Resource Based Relative Value Scale (RB/RVS) quickly,
- establish a "Peace Corps"-type program that requires all graduating physicians to serve in a medically underserved area,
- encourage programs to provide "call" coverage, professional interaction, and emotional support for physicians.

Frank Newman, Ph.D., Director, Montana Area Health Education Center (AHEC), Bozeman, MT—Represents interests and concerns of Montana's 45 frontier counties. In 1987, 52 percent of the counties in the

State were designated as Health Manpower Shortage Areas. There are 60 hospitals and 45 are rural hospitals of 60 beds or less.

Problems—
- maldistribution of physicians is a problem despite the fact that the State has a physician-to-population ratio of 1:650. Only 33 percent (417 doctors) are serving the rural 70 percent of the population,
- all of the State's small rural hospitals are losing money,
- Indian reservations have a very hard time recruiting doctors and low retention rates,
- a 90 percent occupancy rate exists in the State's nursing homes, but only a 25 percent occupancy in the rural hospitals,
- the two federally funded community health centers (CHCs) are both in urban areas.

Strategies—
- creation of State offices of rural health and State rural health associations,
- Indian health programs have retained a fulltime recruiter which placed 16 doctors last year,
- CHCs should be established in rural areas,
- the WAMI (Washington, Alaska, Montana, Idaho) program of rural rotations,
- the AHEC maintains and publishes practice vacancy lists each month, and helps recruit doctors to the State.

Gerald Sailer, M.D., United Clinics, Hettinger, ND—Represents a 17-doctor practice in a medically remote area. The practice created a health maintenance organization (HMO) that ceased operations in January 1989.

Problems—
- peer support is unavailable unless through group practice or other arrangements,
- time for family must be planned into physician retention plans,
- doctors often are not educated for the demands of rural practice,
- payments for rural doctors and hospitals is very low,
- procedure-oriented physicians are paid much more than cognitive physicians.

Strategies—
- adopt RB/RVS without geographic differences,
- equalize urban and rural payments for similar services for both hospitals and physicians,
- pay for nurse-anesthetist services at cost in hospitals eligible for Sole Community Hospital (SCH) designation,
- develop payment rates for rural HMOs that are not based on usual and customary rates, which perpetuates payment inequities,
- refine the definition of and payments to assure that necessary hospitals survive.

Carol Miller, President, Mountain Management, Ojo Sarco, NM—Represents concerns of "frontier" areas.

Problems—
- cutbacks in Federal funding,
- physician maldistribution,
- reductions in funding have crippled rural and frontier communities' ability to recruit health professionals,
- medical indigency is a primary barrier to access.

Strategies—
- restore and improve the NHSC,
- expand Medicaid to assure the same coverage in all States,
- provide tax credits and incentives for rural practice,
- provide locum tenens coverage for doctors' vacations and continuing medical education (CME),
- make Federal CHC and NHSC programs more available for small sites in rural and frontier areas.

Nursing Issues

Lois Merrill, Dean, College of Nursing University of North Dakota, Grand Forks, ND—Represents concerns of nurses and their employes.

Problems—
- rural nurses and facilities can't afford additional training required by modern practice,
- reimbursement for rural hospitals makes them unable to compete with urban hospitals for nurses,
- urban hospitals are raiding rural areas for nurses,
- direct reimbursement for advanced degree nurses is unavailable.

Strategies—
- support outreach education,
- financial aid should recognize the needs of adults,
- reimburse rural hospitals equitably, recognizing the increased demand and pay scales for nurses,
- provide indirect payments for nurse training as is available for physician training,
- direct reimbursement for nurse practitioners, nurse midwives and certified registered nurse anesthetists.

Sue Ebertowski, R.N., Director of Nursing, Mercy Hospital, Williston, ND—Represents a 125-bed rural hospital, 200 miles from the nearest tertiary hospital. It is paid rural rates and has an occupancy rate of 35 to 40 percent. The nursing staff has a 21 percent turnover rate and currently has no vacancies.

Problems—
- obsolete job and work structures,
- insufficient job feedback,
- lack of participation in decision-making,
- first line manager deficiencies,
- ineffective nurse-to-nurse relationships,
- ineffective nurse-to-physician relationships,

- nonproductive nurse-to-ancillary department relationships,
- high stress among nurses,
- lack of innovative environment,
- deficient internal and external image of nursing,
- untargeted and ineffective recruitment marketing,
- inadequate wage systems,
- nursing technology lag,
- underdeveloped strategic plans for the nursing organization.

Karen Pederson-Halle, R.N., Lake Regional District Health Unit, Devils Lake, ND—Represents a health department unit that serves five counties, an area of 5,835 square miles. There are 6.6 full-time equivalent nurses, and the Unit should have four more nurses to meet standard staffing ratios. The Unit provides community health nursing, WIC, family planning, health screening and environmental health services to a population of over 38,000.

Problems—
- salaries are considerably lower than in local hospitals and even lower compared to city hospitals in the State,
- the area is not considered attractive to many nurses with the largest town having a population of only 750,
- little chance for advancement,
- declining funding for public health programs,
- difficult to identify results from preventive care,
- need to be better versed in politics and public speaking.

Strategies—
- increase funding for public health programs,
- train nurses for community and rural practice,
- develop career ladders within region.

Hurdis Griffith, R.N., Ph.D., University of Texas, Austin, TX—Represents concerns of rural nurse practitioners (NPs).

Problems—
- low pay for NPs (rural NPs average $13.36/hr),
- lack of recognition of capabilities of NPs to function independently,
- State laws and their interpretation are sometimes real barriers to implementation of Rural Health Clinics Act (RHCs),
- many third-party payors do not reimburse for NPs' services.

Strategies—
- simplify RHC reporting, which is currently not feasible in small sites,
- establish NP traineeships to help train local nurses to become NPs,
- provide direct reimbursement for NPs' services.

A Potpourris of Related Issues

Dwayne Ollerich, Ph.D., Academic & Research Affairs, University of North Dakota School of Medicine, Grand Forks, ND—Represents general economic concerns of rural North Dakota, where agricultural economy has been poor, retail sales have dropped, and population and jobs have declined.

Problems—
- underemployment of rural residents,
- lack of outreach training available that will allow rural, residents to train while employed or in their own communities.

Strategies—
- need assistance grants for transition from farming to other employment,
- programs to develop leadership within local resources,
- need support for students for travel, tuition and child care,
- should use new communications technology for local training.

Tom Robertson, Director, Southeast Montana Rural Health Initiative, Glendive, MT—Represents a county health department that serves a geographically large five-county area with a population of 85,000. He is also part-time director of the SE Montana Rural Health Initiative, a primary care program that no longer has funding from the CHC program. Most of the people in the area consider themselves lucky to live within 50 miles of a physician or a physician's assistant (PA).

Problems—
- recruitment and retention of all health personnel, especially emergency medical technicians (EMTs),
- very long drives for training and services with no one picking up the costs of that travel,
- EMT testing is often provided 200 to 300 miles away,
- low pay rates for health professionals is a disincentive for retention.

Strategies—
- training throughout rural and frontier areas funded by the Public Health Service,
- payment for more services not covered by current home health programs for frontier areas,
- allow more flexibility in productivity and other standard in the CHC Program,
- allow more multiple-county CHC projects.

Pam Locken, Administrator, Isabel Community Clinic, Isabel, SD—Represents a CHC staffed by a solo PA whose backup physician supervisor is 104 miles away by air transport. The clinic is between two Indian reservations. It is 60 miles to the nearest hospital. The average age in the three-county service area is 19 years old.

Problems—
- poor counties with low tax base,
- no backup for PA when he is on vacation or CME travel,
- bad weather limits ability to transport,
- nearest pharmacy is 55 miles away,
- Indian Health Service will not acknowledge PA's prescription.

Strategies—
- certification as RHC allows payments to cover relatively high per unit cost,
- all staff are cross-trained to do others' jobs,
- use starter doses for prescriptions until mail truck can deliver medications.

Denise Denton, Rural Health Field Coordinator, Utah Department of Health, Salt Lake City, UT—Utah is 83 percent frontier and about 90 percent rural. The State's rural health effort was begun with a NHSC contract in 1982. At that time the State had 12 to 15 new Corps assignees per year, and a total of 25 to 33 assignees in the State. In 1986 the number of new assignees was four, and in 1988 there were no new assignees.

Problems—
- family physician supply is too small to meet the need in both urban and rural areas,
- need better training for communities on how to recruit and retain,
- professional liability is driving doctors out of rural practice,
- grantwriting abilities of many rural communities is weak,
- inequitable reimbursement for physicians provides a disincentive for rural practice.

Strategies—
- provide *locum tenens* coverage for doctors, PAs and NPs,
- tie midlevel providers in with teaching hospitals,
- provide financial incentives for medical schools to do rural programs,
- develop a more relevant rural curriculum for training health professionals.

Meridian, Mississippi

Payment and Financing

Alan Strange, Ph.D., Consultant, National Association of Community Health Centers, Washington, DC—Represents the concerns of the Nation's federally funded 536 CHCs, of which 329 (63 percent) are rural.

Problems—
- rural areas receive 42 percent fewer Federal dollars per capita for health care than urban areas,
- rural people are disproportionately poor and often ineligible for Medicaid,
- rural CHCs serve 50 percent of all CHC users, but receive only 41 percent of Federal CHC funding,
- rural CHCs are required to provide the same scope of services, but lack the economies of scale of larger practices.

Strategies—
- compulsory service for providers completing training,
- improve reimbursement under the Rural Health Clinics and the federally Funded Health Centers Programs,
- expand the Hospital Transition Grant Program to include CHCs,
- increase funding for the NHSC,
- allocate funds targeted for special populations (AIDS, homeless, infant mortality, etc.) on the same basis as basic appropriations.

Penella M. Washington, Health Resources Development Section, North Carolina Department of Human Resources, Raleigh, NC—Represents the State of North Carolina's concerns regarding helping providers become certified as RHCs.

Problems—
- timeframe for certification (from date of application to date eligible for claim reimbursement) is too long (6-9 months),
- centers awaiting certification must discontinue Medicare/Medicaid billing during the approval process, causing cash-flow problems,
- midlevel providers are required to be onsite at least 60 percent of the time the clinic operates, which limits staffing flexibility,
- annual recertification surveys are conducted without prior notification of the clinic, hence appropriate personnel may be absent. Current methodology for calculating productivity screens contains disincentives for exceeding productivity standards,
- documentation required for reimbursement for bad debt is often difficult for small clinics to produce,
- HCFA regions and intermediaries interpret program regulations inconsistently.

Strategies—
- make federally funded CHCs automatically eligible for RHC certification, and streamline process to no longer than 3 months,
- lower midlevel provider requirement to 50 percent of time the clinic is open based on a 12-month fiscal year,
- advise clinics of recertification surveys in advance,
- develop a "team approach" to computing productivity,

- simplify the bad debt recovery process by paying 90 percent of estimated bad debt.

William A. Curry, M.D., F.A.C.P., Carrollton, AL—Represents a private medical group practice that consists of four internists. The local hospital has a medical staff of 10. Local citizens recently passed by a 3 to 1 margin a 3 percent sales tax to support the local hospital.

Problems—
- problems of rural hospitals, doctors, etc. are interconnected,
- structural changes imposed from above won't work; we need to look for "free market" approaches,
- inequitable reimbursement is the major problem for both rural hospitals and doctors,
- alternative model that would turn rural hospitals into simple triage and transport facilities will not be efficient or effective.

Strategies—
- reform the payment system for Medicare and Medicaid to provide equitable payments for rural doctors and hospitals,
- adopt the RB/RVS with adjustments for cost of practice, not cost of living,
- reform Medicaid.

Clinton Smith, M.D., Director, Division of Medicaid, Office of the Governor, Jackson, MS—Represents the Mississippi Medicaid Program.

Problems—
- shortages of doctors, nurses and other health professionals to practice in rural areas,
- rising rates of uncompensated care in hospitals,
- hospitals and doctors dropping obstetrical service,
- transportation, even though it is reimbursable under Medicaid,
- categorical eligibility for Medicaid unfairly restricts coverage.

Strategies—
- provide focused incentives for people to enter health professions and practice in rural areas,
- provide fair reimbursement under Medicaid and Medicare; equal for both urban and rural providers,
- allow States to selectively increase payments for obstetrical care,
- develop public transportation in rural areas,
- dissociate Medicaid eligibility from Aid to Families With Dependent Children, and use more universal standard such as Federal poverty level,
- expand Medicaid coverage for persons between 21 and 65 years.

Access to Care

Rims Barber, Director, Mississippi Human Services Agenda, Jackson, MS—Represents the concerns of the rural poor.

Problems—
- slow Medicaid application processing,
- transportation for the rural poor is difficult to find and expensive,
- home environments often lack basic amenities,
- high rates of teenage pregnancy.

Strategies—
- develop a program of "community facilitators" within CHCs or other entities,
- simplify eligibility and expand coverage under Medicaid,
- mandatory Medicaid participation for doctors to assure that the poor have services available.

Mickey Goodson, Executive Director, Georgia Association for Primary Health Care, Atlanta, GA— Represents primary care providers in Georgia, which has 159 counties (120 with hospitals, 150 with physicians). Nineteen percent of the rural population is poor.

Problems—
- economic status is still a major obstacle to access,
- indigent care burden falls heavily on rural providers,
- maldistribution of doctors and other health professionals.

Strategies—
- more emphasis on comprehensive primary care models of delivery,
- provide universal access to basic services.

Susan Jones, M.D., West Alabama Health Services, Eutaw, AL—Represents a primary care center that sponsors a three-county program to reduce teen pregnancies and improve pregnancy outcomes.

Problems—
- shortage of physicians for rural practice,
- high infant mortality rates in rural areas that are twice as high for black infants.

Strategies—
- funding for programs targeted for specific problems and population segments,
- develop comprehensive systems which include transportation, tracking systems and home visiting,
- revitalize the NHSC.

Pamela Hammock, State Health Office, Tallahassee, FL—Represents the State of Florida, which passed a law in 1984 to create the Public Medical Assistance Trust Fund, funded by a combination of taxes on hospital revenues and general revenue from the State. The Fund has supported primary care projects in all 67 counties and permitted the State to expand Medicaid coverage.

Problems—
- rising and maldistributed indigent care costs,
- poor access to primary health care,
- restricted Medicaid eligibility.

Strategies—
- State funds similar to the Florida model can work to provide additional access for the poor and provide funds for other developmental purposes.

Practice Capacity and Organization

Steven Shattls, Executive Director, Valley Health Systems, Huntington, WV—Represents a primary care health system with a wide array of services, including a perinatal program (which serves 70 percent of the eligible women in a 10,000 square mile area) and to the homeless. The system is located in West Virginia, which is dependent on coal mining in a deep economic depression, and nearly bankrupt.

Problems—
- high reliance on the NHSC for physician manpower and low retention,
- categorical funding restricts ability to use funds to meet the needs of the community,
- limited funding and reimbursement,
- transportation,
- coordinated care important but difficult in rural areas.

Strategies—
- joint approaches to retention with hospitals and public and private providers,
- more flexibility and creativity in using categorical funding,
- more aggressively seek categorical funding,
- more money for case management programs.

Al Fox, Executive Director, Health Development Corp., Tuscaloosa, AL—Represents a system that provides primary health care for six counties. Its initial mission was to recruit and place health professionals in practices that would become stable private practices. Over an 11-year period, it placed 16 physicians and 3 dentists in independent practices. In 1987, it changed its program to conform with the CHC Program to operate comprehensive health centers rather than setting up private practices.

Problems—
- hospital closures hurt recruitment and retention efforts,
- need for stronger working relationships with public health,
- need for standardization in small clinics,
- low per capita incomes and high indigent care load.

Strategies—
- more NHSC physicians for rural practice,
- regionalized training for small clinics to help with efficiency and quality,
- establish linkages with community agencies and programs,
- more CHC funding to cover increasing indigent care load.

Bernard Simmons, Executive Director, Southwest Health Agency for Rural People, Tylertown, MS—Represents a primary health care center in a rural area with no shortage of health manpower but with a high rate of poverty.

Problems—
- financial barriers prevent access to care for many residents,
- teen pregnancy rate is 25.4 percent,
- initial perception of program as a "Federal clinic" with low participation from White population.

Strategies—
- expand Medicaid to include more of population,
- interact with local private providers to give "team approach" to health care,
- funding for midlevel providers to help clinics become certified as RHCs,
- funding for social workers or others to act as case managers.

Shirley Parker, Executive Director, Laurel Forklear Fork Health Centers, Clairfield, TN—Represents a network of four small clinics located in Eastern Tennessee and Kentucky in areas where organized health care was first provided by "camp doctors" hired by the mining companies. Fifty-five percent of the people in the service have incomes below the poverty level.

Problems—
- high proportion of indigent care,
- recruitment and retention,
- need for automation of billing and bookkeeping functions,
- high cost for medical liability insurance,
- increasing facility repair and maintenance costs.

Strategies—
- increases in grant funds should be tagged to increasing patient load and indigent care load,
- excess program income should be retained by centers to use or to save as they see fit,
- tort reform needed on malpractice,
- provide tax credits or deductions for rural doctors,
- better reimbursement for mid-level providers,
- more rural-based training programs for physicians,
- renovation money should be made available.

Appendix H

Summary of OTA Special Report on Rural Emergency Medical Services

The average U.S. resident will need ambulance service at least twice in his or her lifetime; and for some of these patients, delays in receiving emergency care will contribute to death or permanent injury. The one-quarter of Americans who live in rural areas, which occupy four-fifths of the country's land area, face special problems in receiving emergency care. It is difficult to deliver emergency medical services (EMS) to widely dispersed populations quickly, and in small rural communities there may be less than one emergency call a day. This relatively low volume of calls may mean that a rural ambulance service cannot support itself financially and that rural EMS providers have difficulty maintaining their specialized skills. The time it takes to reach emergency patients may always be longer in some rural areas than urban areas because of distances between services and rural residents.

While problems relating to population dispersion are not easily amenable to intervention, many of the problems rural EMS providers are having in delivering EMS care can be alleviated with additional resources and system-wide planning. Among these problems are:

- EMS personnel shortages;
- inadequate advanced training opportunities for available EMS providers;
- a lack of medical supervision of local EMS operations;
- antiquated equipment (e.g., communications equipment);
- poor public access to EMS; and
- an absence of regionalized systems of specialized EMS care, such as trauma systems.

The Federal role in supporting State EMS programs has waned in recent years, but evidence of serious impediments to quality EMS care in rural areas argues for an increased Federal role. Limited Federal resources might successfully be used to:

- promote training of EMS providers;
- facilitate the development of national consensus guidelines or standards for prehospital EMS providers and EMS facilities;
- provide technical assistance to States;
- support EMS-related research and demonstration projects; and
- provide incentives for States to implement EMS planning efforts.

Specific Federal options to be considered include:

- Federal Initiatives in EMS Training

—Option 1: Congress could fund the Department of Health and Human Services (DHHS) to provide assistance in improving the supply and level of skills of rural prehospital and hospital-based EMS providers. Increased Federal assistance could include support of EMS training and continuing education programs, and State recruitment and placement programs.

—Option 2: Congress could require the Department of Transportation (DOT) to reevaluate the standard curricula for EMS providers.

- Federal Guidelines or Standards

—Option 3: Federal legislation could facilitate the development of national consensus guidelines or standards for prehospital EMS providers.

—Option 4: Federal legislation could facilitate the development of national consensus guidelines or standards for specialized EMS facilities such as trauma centers. Such guidelines or standards might delineate the role of small rural hospitals in EMS care.

- Federal EMS Technical Assistance

—Option 5: Congress could fund DOT and DHHS to augment technical assistance to State EMS offices.

- Federally Sponsored EMS Research and Demonstration Programs

—Option 6: Congress could fund DOT and DHHS to augment their EMS research and demonstration programs and encourage the investigation of EMS problems unique to rural areas and providers. The research efforts of DOT's National Highway Traffic Safety Administration, and DHHS's National Center for Health Services Research and Centers for Disease Control, could be coordinated to address a broad range of outstanding research questions.

- Federal Incentives for Planning and EMS Systems Development

—Option 7: Congress could augment support of existing Federal programs that address EMS, namely the DHHS Preventive Health Block Grant program and DOT's State and Community Highway Safety Grant Program. Consideration could be given to earmarking funds within these grant programs for EMS.

—Option 8: Congress could establish a new EMS categorical grant program within DHHS.

- Targeting EMS Resources to Rural Areas

—Option 9: To accommodate the diversity of rural areas, any Federal EMS resources provided to States could be tied to implementation of a comprehensive State plan that addresses that State's rural EMS system problems.

Appendix I

Organizational Charts: U.S. Department of Health and Human Services and Health Resources and Services Administration

Figure I-1—U.S. Department of Health and Human Services

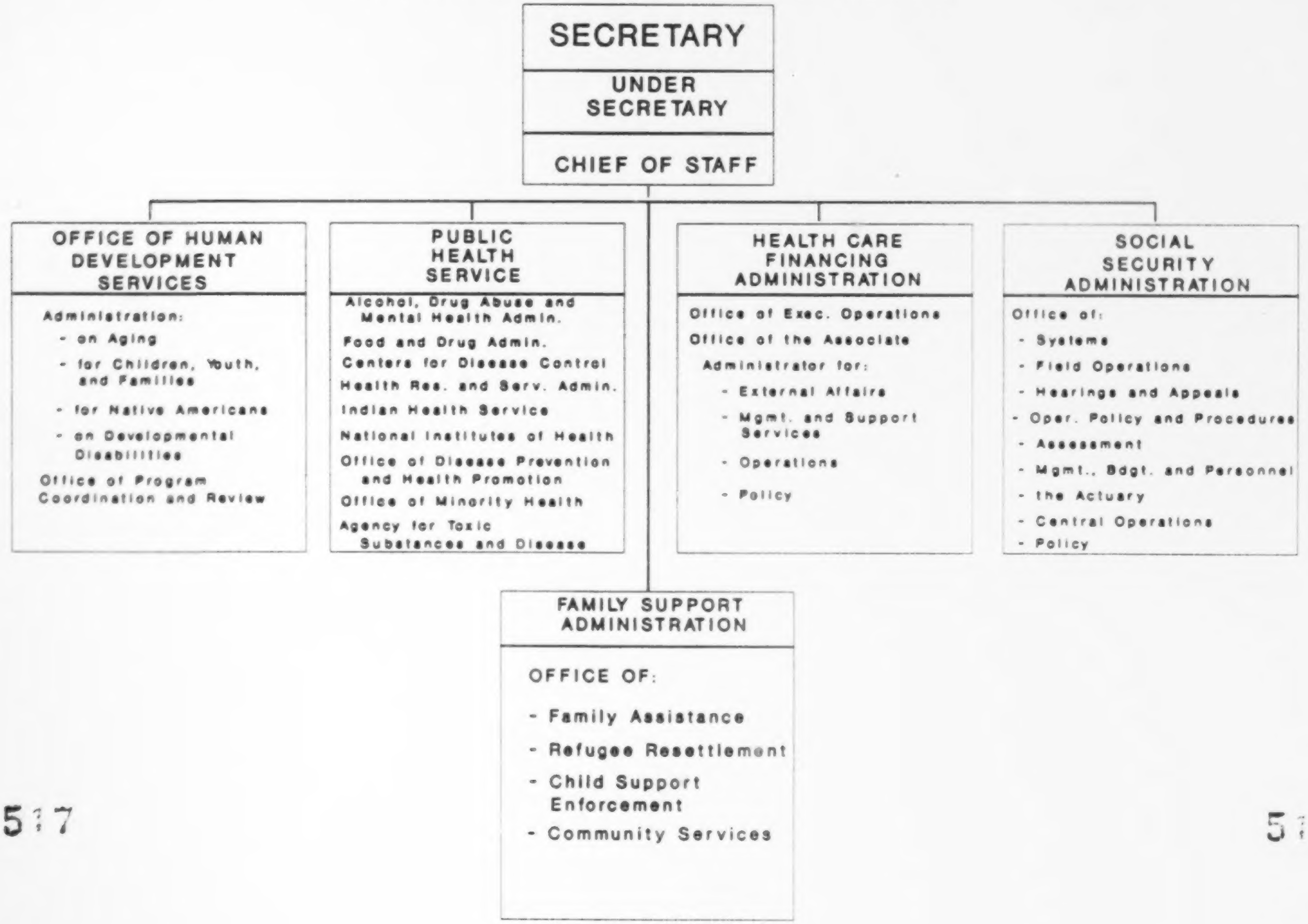
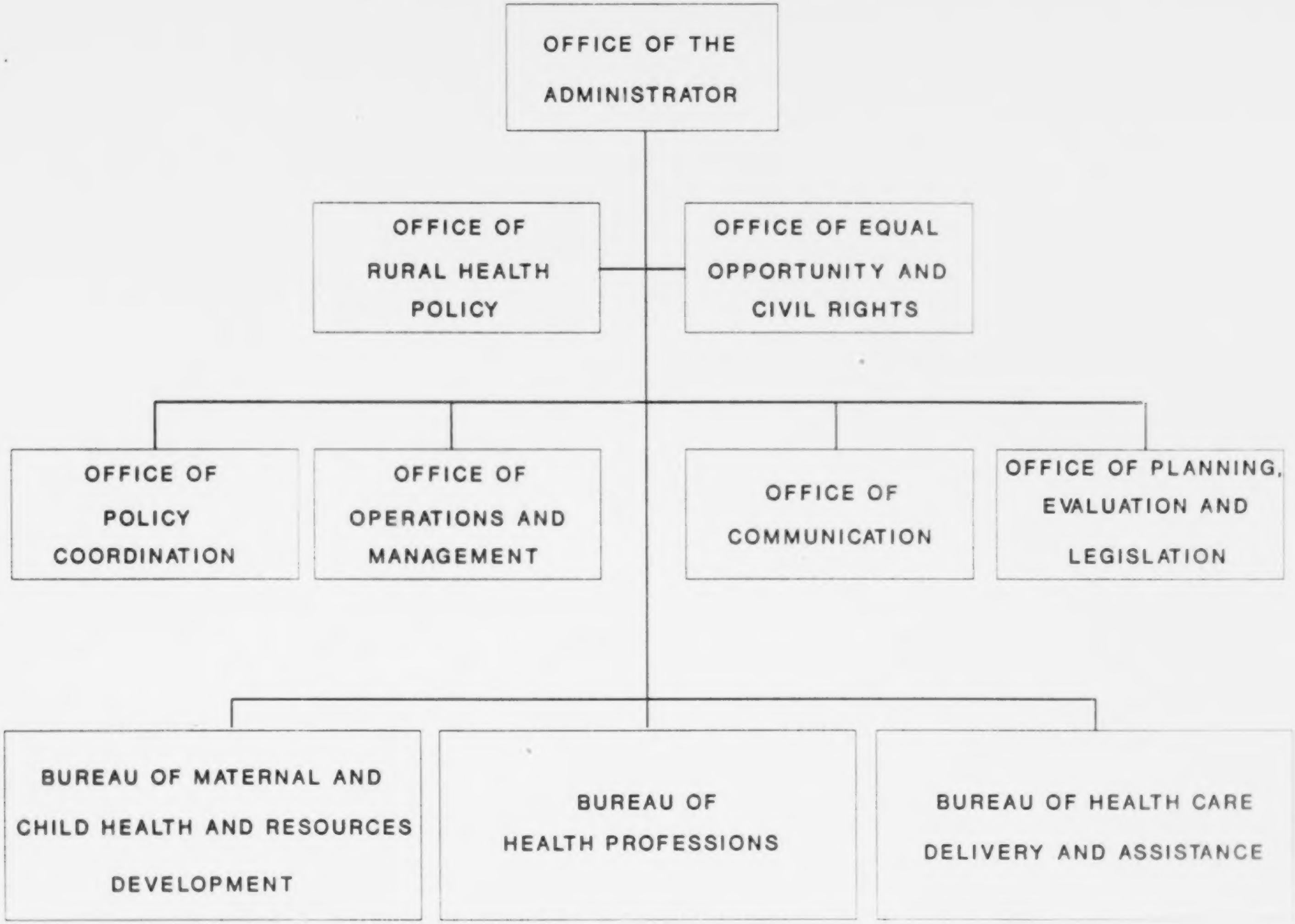

SECRETARY
UNDER SECRETARY
CHIEF OF STAFF
OFFICE OF HUMAN DEVELOPMENT SERVICES
Administration:
- on Aging
- for Children, Youth, and Families
- for Native Americans
- on Developmental Disabilities
Office of Program Coordination and Review
PUBLIC HEALTH SERVICE
Alcohol, Drug Abuse and Mental Health Admin.
Food and Drug Admin.
Centers for Disease Control
Health Res. and Serv. Admin.
Indian Health Service
National Institutes of Health
Office of Disease Prevention and Health Promotion
Office of Minority Health
Agency for Toxic Substances and Disease
HEALTH CARE FINANCING ADMINISTRATION
Office of Exec. Operations
Office of the Associate Administrator for:
- External Affairs
- Mgmt. and Support Services
- Operations
- Policy
SOCIAL SECURITY ADMINISTRATION
Office of:
- Systems
- Field Operations
- Hearings and Appeals
- Oper. Policy and Procedures
- Assessment
- Mgmt., Bdgt. and Personnel
- the Actuary
- Central Operations
- Policy
FAMILY SUPPORT ADMINISTRATION
OFFICE OF:
- Family Assistance
- Refugee Resettlement
- Child Support Enforcement
- Community Services

Figure I-2—Health Resources and Services Administration


OFFICE OF THE ADMINISTRATOR
OFFICE OF RURAL HEALTH POLICY
OFFICE OF EQUAL OPPORTUNITY AND CIVIL RIGHTS
OFFICE OF POLICY COORDINATION
OFFICE OF OPERATIONS AND MANAGEMENT
OFFICE OF COMMUNICATION
OFFICE OF PLANNING, EVALUATION AND LEGISLATION
BUREAU OF MATERNAL AND CHILD HEALTH AND RESOURCES DEVELOPMENT
BUREAU OF HEALTH PROFESSIONS
BUREAU OF HEALTH CARE DELIVERY AND ASSISTANCE

Appendix J

Glossary of Terms

Access: Potential and actual entry of a population into the health care delivery system.

Accounts receivable: The full amount of patient care charges owed to a hospital or other health care facility. Average days in accounts receivable refers to the average number of days it takes a hospital or other facility to collect the full amount of patient care charges.

Accreditation by JCAHO: A statement by the Joint Commission on the Accreditation of Healthcare Organizations (JCAHO) that an eligible health care organization, such as a hospital, complies wholly or substantially with JCAHO standards.

Acute care: Services within a hospital setting intended to maintain patients for medical and surgical episodic care over a relatively short period of time.

Admissions: Number of patients, excluding newborns, accepted for hospital inpatient service during a particular reporting period (American Hospital Association definition).

Allowed (or allowable) charge (under Medicare): See *customary, prevailing, and reasonable charges.*

Alternative facility licensure: The process by which a State creates a new category of licensed health care facility or new licensure rules for existing categories of facilities for the purpose of maintaining the viability and accessibility of certain facilities or services.

Ambulatory care: Medical services provided to patients who are not inpatients of hospitals. It includes outpatient hospital care.

Ambulatory surgery: Scheduled surgical services provided to patients who do not remain in a hospital overnight. The surgery may be performed in hospital operating suites or procedure rooms within a freestanding ambulatory care center.

Ancillary services or technology: Medical technology or services used directly to support basic clinical services, including diagnostic radiology, radiation therapy, clinical laboratory, and other special services.

Antitrust laws: Laws such as the Clayton Act (15 U.S.C. 12-27) that prohibit institutional mergers and acquisitions, exclusive contracts, joint ventures, and other business dealings in areas that may substantially reduce competition or have the tendency to produce a monopoly, and consequently have a detrimental effect on consumer welfare.

Assignment: A process whereby a Medicare beneficiary assigns his or her right to payment from Medicare to the physician or supplier. In return, the physician or supplier agrees to accept Medicare's reasonable or *allowed* charge as payment in full for covered services. The physician (or supplier) may not charge the beneficiary more than the applicable deductible and coinsurance amounts. For physicians and suppliers who do not accept assignment, payment is made by Medicare directly to the beneficiary, who is responsible for paying the bill. In addition to the deductible and coinsurance amounts, the beneficiary is liable for any difference between the physician's actual charge and Medicare's reasonable (allowed) charge.

Average length of stay: Average stay of hospital patients from admission to discharge during a particular reporting period; derived by dividing the number of inpatient days by the number of admissions for the period.

Bad debts: Patient care charges owed to a facility that the facility considers to be largely uncollectable.

Balance billing: In the Medicare program, the practice of billing a Medicare beneficiary in excess of Medicare's allowed charge. The "balance billing" amount would be the difference between Medicare's allowed charge and the physician's (or other qualifying provider's) billed charge. (See *customary, prevailing, and reasonable charges*; *allowed charge*; and *billed charge.*)

Billed charge: In the Medicare program, the physician's (or supplier's) actual (billed) charge for a service. Compare with *customary, prevailing, and reasonable charges.*

Birthweight: The weight of an infant at the time of delivery.

Board-certified physician: A physician who has completed requirements of advanced training and practice in a particular medical specialty and has passed examinations offered by the national certifying board for that specialty.

Breakeven financial status: The point in operations at which a business (e.g., health care facility) neither loses money nor makes a profit.

Capital expenditures: The costs (including borrowing costs) of purchasing a capital asset (e.g., plant, equipment).

Carrier (Medicare): See *Medicare intermediaries or carriers.*

Case mix: The relative frequency of admissions of various types of patients, reflecting different needs for hospital resources.

Certificate of Need (CON) laws: A certificate required by State law and issued by the State Health Planning and Development Agency to an individual or organization proposing to construct or modify a health facility, or offer a new or different health service. CON recognizes that the proposed facility is needed (i.e., it does not create an excessive supply of services or add unnecessary costs to the health care system).

Certification by HCFA: A statement by the Health Care Financing Administration (HCFA) that a hospital or health care institution meets HCFA's conditions of participation. Certification by HCFA is required for Medicare and Medicaid reimbursement.

Certified Rural Health Clinic (RHC): A facility (or part of a facility), engaged mainly in the provision of outpatient primary medical care, that is eligible to receive cost-based Medicare and Medicaid reimbursement primarily by virtue of its: (1) location in a Census-defined rural health manpower shortage area (HMSA) or medically underserved area (MUA), and (2) employment of at least one midlevel practitioner (i.e., physician's assistant, nurse practitioner, or nurse-midwife).

Community Health Centers (CHCs): Health care facilities funded by the U.S. Department of Health and Human Services to provide comprehensive primary health services in both rural and urban areas where there are shortages of medical personnel and services.

Community Mental Health Center (CMHC): An organization (or affiliated group of organizations), that received Federal funding under the Community Mental Health Centers Act of 1963 to make available a comprehensive set of community-based mental health services, including emergency and outpatient care, consultation and education, and partial and complete hospitalization.

Computed Tomography (CT) scanner: A diagnostic device that combines X-ray equipment with a computer and a cathode ray tube (television-like device) to produce images of cross-sections of the body.

Congenital abnormality or anomaly: Any abnormality, whether genetic or not, that is present at birth.

Contiguous area: As it relates to HMSAs, an area in close proximity to an area under consideration for designation as a *HMSA* (proximity is based on travel time from the population center of the service area to the center of the contiguous areas).

Continuity of care: Medical care that proceeds without interruption across time and across different sites and levels of care.

Contract-managed hospitals: General daily management of a hospital by another organization under a formal contract. Managing organization reports directly to the board of trustees or owners of the managed hospital. The managed hospital retains total legal responsibility and ownership of the facility (American Hospital Association definition).

Cooperative or alliance of hospitals and other facilities: A formal organization working on behalf of its individual members for specific purposes (e.g., sharing of services, development of staff education programs, legislative advocacy).

"Crow-fly" miles: A term used to describe the straight-line or shortest distance in miles between a given number of hospitals regardless of the actual or practical means (e.g., roads) available to travel between these hospitals.

Customary, prevailing, and reasonable (CPR) charge method (Medicare): The method used by carriers to determine the approved charge for a particular Part B service from a particular physician or supplier based on the actual charge for the service, previous charges for the service by the physician or supplier in question, and previous charges by peer physicians or suppliers in the same locality. **Customary charge:** In the absence of unusual medical circumstances, the maximum amount that a Medicare carrier will approve for payment for a particular service provided by a particular physician practice. The carrier computes the customary charge on the basis of the actual amount that a physician practice or supplier generally charges for a specific service. **Prevailing charge:** In the absence of unusual medical circumstances, the maximum amount a Medicare carrier will approve for payment for a particular service provided by any physician practice within a particular peer group and locality (see "prevailing charge locality"). Generally, this amount is equal to the lowest charge in an array of customary charges that is high enough to include 75 percent of all the relevant customary charges. **Approved or reasonable charge:** An individual charge determination made by a Medicare carrier on a covered Part B medical service or supply. In the absence of unusual medical circumstances, it is the lowest of: 1) the physician's or suppliers' customary charge for that service; 2) the prevailing charge for similar services in the locality; 3) the actual charge made by the physician or supplier; and (4) the carrier's private business charge for a comparable service. Also called allowed charge or reasonable charge.

Day treatment: A specialized and intensive form of mental health service, less restrictive than inpatient care, in which the partially hospitalized patient receives treatment for 5 to 6 hours a day.

Degree of shortage: See *Priority groups.*

Diagnosis-Related Groups (DRGs): Groupings of diagnostic categories drawn from the International Classification of Diseases and modified by the presence of a surgical procedure, patient age, presence or absence of significant comorbidities or complications, and other relevant criteria. DRGs are the case-mix measure mandated for Medicare's prospective hospital payment system by the Social Security Amendments of 1983 (Public Law 98-21).

Direct reimbursement: Payment for services that is submitted directly to the health care practitioner who provided those services.

Downsizing (of hospitals and other health care facilities): Taking actions such as reducing the number of beds and staff with the goal of reducing expenses in order to cope with diminished demand for services.

DRG outliers: Cases with unusually high or low resource use. Defined by the Social Security Amendments of 1983 (Public Law 98-21) as atypical hospital cases that have either an extremely long length of stay or extraordinarily high costs when compared to most discharges classified in the same diagnosis-related group. (See *Diagnosis-Related Groups*)

Electronic fetal monitoring: Continuous monitoring of the fetal heart rate and uterine contractions through the use of an electrode and an amniotic fluid catheter and pressure transducer attached to the mother's abdomen. This process is used to detect abnormal fetal cardiac patterns during labor and delivery.

Endowments: Funds established by an institution to accept monetary contributions from private sources.

Essential Access Community Hospital (EACH): A newly designated type of rural hospital created by Congress in 1989 (Public Law 101-239). Limited to hospitals in only a few States, EACHs will be facilities of at least 75 beds that provide backup to *Rural Primary Care Hospitals* as part of a patient referral network. Designated facilities will automatically qualify for Medicare's payment rules for *Sole Community Hospitals*.

"Evaluative and management services": Services, such as office visits, that may involve but do not depend in a major way on any medical devices.

Expenses per inpatient day: Expenses incurred for inpatient care only, derived by dividing total expenses by the number of inpatient days during a particular period (American Hospital Association definition).

Extracorporeal shock wave lithotripsy (ESWL): A technique for disintegrating urinary tract stones that uses shock waves generated outside a patient's body and does not require a surgical incision.

Federal Tort Claims Act (FTCA): Enacted in 1946 [28 U.S.C.A. sec. 1346(b)(Supp. 1988)], the FTCA allows an injured party to sue the United States Government.

Fee schedule (for physician services): An exhaustive list of physician services in which each entry is associated with a specific monetary amount that represents the approved payment level under a given insurance plan.

Fertility rate: The annual number of live births per 1,000 women of childbearing age (15 to 49 years) in a defined population as a proportion of the estimated mid-year population of women 15 to 49 years of age.

Fetal death: The product of conception which, after separation from its mother, does not breathe or show other signs of life required to meet the World Health Organization's criteria for a live birth. Compare *live birth*.

Fetal mortality ratio: The annual number of fetal deaths as a proportion of the annual number of live births.

Fixed costs: An operating expense that does not vary, at least over the short term, with the volume of services provided.

Freestanding facilities: Facilities that are not physically, administratively, or financially connected to a hospital, such as a freestanding ambulatory surgery center.

Frontier counties: Counties with population densities of 6 or fewer persons per square mile.

Geographic Practice Cost Index (GPCI): An index used by Medicare and some researchers to examine differences in physician practice costs across geographic areas. The index is based on per-unit costs.

Gross patient revenue: Consists of the full amount of revenue from services rendered to patients, including payments received from or on behalf of individual patients.

Health Maintenance Organization (HMO): A health care organization that, in return for prospective per capita payments, acts as both insurer and provider of comprehensive but specified medical services. A defined set of physicians provide services to a voluntarily enrolled population. Prepaid group practices and individual practice associations are types of HMOs.

Health Manpower Shortage Areas (HMSAs): Areas, population groups, and facilities designated by the Federal Government as having shortages of health personnel. HMSAs, which are currently designated for primary care, dental, and psychiatric personnel, are determined primarily by population-to-practitioner ratios.

Health Manpower Shortage Area Placement Opportunity List (HPOL): A list of the most needy *HMSAs* used by the National Health Service Corps in the placement of volunteer and obligated personnel.

Hill-Burton program: A Federal program begun in 1946 to fund health facility constructioin in areas of need and foster coordination among health care facilities.

Hospital or health care facility cooperative/alliance: See *Cooperative or alliance of hospitals and other facilities*

Hospital or health care district/authority: A geographic area created and controlled by a political subdivision of a State, county, or city solely for the purpose of establishing and maintaining medical care or health-related care institutions.

Index of Medical Underservice (IMU): The sum of the weighted values of four indicators of unmet health care needs in an area (i.e., infant mortality rate, percent of the population 65 and older, percent of the population living in poverty, and population-to-primary care physician ratio) that is used to determine its status as a *Medically Underserved Area*. IMU values range from 0 to 100, with lower scores indicating increasing medical underservice.

Indirect reimbursement: A situation wherein a health care practitioner can be reimbursed for his or her services, but can only obtain such reimbursement through the employing physician or health care facility.

Infant mortality: Death in the first year of life. It includes *neonatal mortality* and *postneonatal mortality*.

Infant mortality rate: The annual number of deaths among children less than 1 year old as a proportion of the annual number of live births.

Inpatient care: Medical services provided to patients admitted to hospitals for overnight stay.

Inpatient days: Number of adult and pediatric days of care, excluding newborn days of care, in a hospital rendered during a particular reporting period (American Hospital Association definition).

Insufficient-capacity criteria: Criteria specific to primary care and dental *HMSA* designations that signify the inability to obtain health services in a timely fashion (e.g., unusually long waiting times for appointments, high percentage of area practitioners not accepting new patients).

Intensive care: Hospital service units designed to meet the special needs of patients who are seriously or critically ill or who otherwise need intense and specialized nursing care.

Joint venture: A relationship in which two or more parties enter into a business as co-owners of a specific project(s) to share in profits and losses.

Live birth: According to the World Health Organization, "the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy, which, after such separation, breathes or shows any other evidence of life such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles." This definition is the basis for most States' requirements governing the reporting of live births. Compare *fetal death*.

Local health departments (LHDs): Municipal or county government-operated facilities providing basic personal and environmental health services.

Long-term care: Health care for nonacute conditions (e.g., convalescent care for a person with an extended or permanent disability). Includes skilled nursing care (long-term care requiring the supervision and frequent services of a skilled nurse) and intermediate care (the routine provision of health-related care to individuals not requiring skilled nursing care).

Low birthweight babies: Live births weighing less than 5-$^1/_2$ pounds (2,500 grams).

Magnetic resonance imaging (MRI): A technique that produces images of the body by measuring the reaction of nuclei (typically of hydrogen protons) in magnetic fields to radiofrequency waves.

Maternal mortality: Maternal mortality includes deaths due to complications of pregnancy, childbirth, and the puerperium (the period of 42 days following the termination of pregnancy). Causes of maternal mortality include uterine hemorrhage, toxemia, and underlying medical conditions that complicate pregnancy such as diabetes and infections (e.g., tuberculosis, syphilis).

Maternal mortality rate: The annual number of maternal deaths related to pregnancy as a proportion of the annual number of live births.

Medicaid: A Federal-State medical assistance program authorized in 1965 to pay for health care services used by people defined as medically needy or categorically needy. Categorically needy persons are low-income aged, blind, disabled, first-time pregnant women, or families with dependent children. Medically needy persons are any of the above whose incomes are above eligibility limits for the categorically needy but who have high medical expenses that reduce their resources below established limits.

Medically Underserved Areas (MUAs): Areas determined by the Federal Government to have inadequate access to health care as determined by the *Index of Medical Underservice (IMU)*.

Medically Underserved Populations (MUPs): Populations not meeting *MUA* criteria that are designated as underserved based on unusual local conditions that may affect the area/population.

Medicare: A nationwide, federally administered health insurance program authorized in 1965 to cover the cost of hospitalization, medical care, and some related services for eligible persons over age 65, persons receiving Social Security Disability Insurance payments for 2 years, and persons with end-stage renal disease. Medicare consists of two separate but coordinated programs—hospital insurance (Part A) and supplementary medical insurance (Part B). Health insurance protection is available to insured persons without regard to income.

Medicare conditions of participation: Requirements that hospitals and other institutional providers must meet in order to be allowed to receive payment for Medicare patients. An example is the requirement that hospitals conduct utilization review.

Medicare intermediaries or carriers: Fiscal agents (typically Blue Cross plans or commercial insurance firms) under contract to the Health Care Financing Administration for administration of specific Medicare tasks. These tasks include determining reasonable costs for covered items and services, making payments, and guarding against unnecessary use of covered services for Medicare Part A payments. Intermediaries also make payments for home health and outpatient hospital services covered under Part B.

Medicare/Medicaid beneficiary: One who receives coverage for health services under Medicare or Medicaid.

Medicare operating margin: Revenues received by a health care provider from Medicare less the provider's operating costs covered by Medicare payments, divided by Medicare revenues and multiplied by 100. Medicare revenues and costs not covered under Medicare's prospective payment system (e.g., capital expenditures, medical education costs) are excluded.

Merger (of health facilities): The union of two or more formerly independent institutions under a single ownership, accomplished by the complete acquisition of one institution's assets or stock by another institution.

Migrant Health Center (MHC): A center that receives Federal funds to provide primary health care to migrant and seasonal farmworkers and their families.

Metropolitan Statistical Area (MSA): As defined by the U.S. Office of Management and Budget, an MSA is a county or group of counties that includes either a city of at least 50,000 residents, or an urbanized area with at least 50,000 people that is itself part of a county/counties with at least 100,000 total residents.

Multihospital system: Two or more hospitals that are owned, leased, sponsored, or contract-managed by a central organization (American Hospital Association definition).

Negative operating margin: A loss that occurs when costs of operation exceed revenues.

Neonatal intensive care unit (NICU): A specialized hospital unit combining high technology and highly trained staff that treats seriously ill newborns.

Neonatal mortality rate: The annual number of neonatal deaths as a proportion of the annual number of live births.

Neonatal mortality: Death during the first 4 weeks of life.

Net patient revenue: For a hospital or other health care facility, consists of *gross patient revenue* less deductions for contractual adjustments (amounts of patient charges not paid by insurers), *bad debts*, charity, and other factors.

Net total revenue: Consists of *net patient revenue* plus all other revenue of a hospital or other health care facility, including contributions, endowment revenue, government grants, and all other payments not attributable to patient care.

Nonmetropolitan Statistical Area (NonMSA): Any area not in an MSA.

Obstetric care: Medical care received during pregnancy, labor and delivery, and the period immediately following birth.

Occupancy: Ratio of average number of inpatients (excluding newborns) receiving care to the average number of beds in a hospital set up and staffed for use (i.e., statistical beds) during a particular reporting period (American Hospital Association definition).

Operating costs: The ongoing expense of operating a health care facility.

Outmigration: As used in this report, the movement by rural residents outside their communities (particularly to urban areas) to receive health care and other services.

Outpatient care: Services provided in a hospital and that do not include an overnight stay.

Outpatient surgery: See *Ambulatory surgery*.

Overhead costs: Includes costs to a health care facility that are not direct labor (i.e., payroll expenses) such as employee fringe benefits and other expenses indirectly related to patient care operations.

Partial hospitalization: A planned transitional program of mental health treatment services after psychiatric hospitalization or residential treatment when a patient no longer needs 24-hour care.

Patient margin: A measure of the profitability of patient care, calculated as (patient care revenues minus total costs) divided by patient care revenues. See aslo *net patient revenues*.

Peer Review Organizations (PROs): PROs are organizations established in 1982 (Public Law 97-248) with which the U.S. Department of Health and Human Services contracts to review the appropriateness of settings of care and the quality of care provided to Medicare beneficiaries.

Perinatal care: Medical care pertaining to or occurring in the period shortly before or after birth; variously defined as beginning with the completion of the 20th to 28th week of gestation and ending 7 to 28 days after birth.

Perinatal mortality: Fetal and neonatal deaths combined.

Perinatal mortality ratio: The annual number of perinatal deaths as a proportion of the annual number of live births.

Physician Payment Review Commission: A commission established by the Comprehensive Omnibus Budget Reconciliation Act of 1985 (Public Law 99-272) to make recommendations to Congress and the Secretary of Health and Human Services on various issues relating to changes in physician payment under Medicare.

Positive operating margin: A surplus that occurs when revenues exceed costs of operation.

Postneonatal mortality: Deaths that occur from 28 days to age one.

Postneonatal mortality rate: The annual number of postneonatal deaths as a proportion of the annual number of live births.

Preceptorship: An arrangement whereby a student takes part of his or her training under the supervision of an active practitioner at that practitioner's worksite. For example, an office-based physician in a rural area may serve as a preceptor for a medical student, instructing the student in the various aspects of rural medical practice.

Premature births: Babies born between 20 and 36 weeks gestation. (also called preterm births)

Prenatal care: Medical services delivered from conception to labor. Prenatal care and intrapartum care combined are referred to as maternity care. Early prenatal care is care received in the first trimester of pregnancy.

Prevailing charge (Medicare): See *Customary, prevailing, and reasonable (CPR) method.*

Prevailing charge locality (Medicare): A particular geographic locality within which Medicare determines prevailing charges and sets payment under Part B for medical services provided by physicians and other qualifying health care practitioners. There are approximately 240 separate prevailing charge localities in the United States.

Primary care: A basic level of health care, usually provided in an outpatient setting, that emphasizes a patient's general health needs.

Primary care physicians (as defined for HMSA designation purposes): Family and general practitioners, general pediatricians, obstetricians and gynecologists, and general internists.

Priority groups: The ranking of designated *HMSAs* into four groups according to population-to-practitioner ratios and indications of high need and insufficient capacity (group 1 HMSAs indicate greatest need).

"Procedural" services: Services that are dependent in a substantial way on the use of a medical device. Contrast "*evaluative and management services*."

Procedure (medical or surgical): A medical technology involving any combination of drugs, devices, and provider skills and abilities. Appendectomy, for example, may involve at least drugs (for anesthesia), monitoring devices, surgical devices, and the skilled actions of physicians, nurses, and support staffs.

Prospective payment: Payment for medical care on the basis of rates set in advance of the time period in which they apply. The unit of payment may vary from individual medical services to broader categories, such as hospital case, episode of illness, or person (capitation). Compare *retrospective cost-based reimbursement.*

Prospective Payment Assessment Commission (ProPAC): A commission established by the same law that created the DRG-based prospective payment system for Medicare (Public Law 98-21) to advise the Secretary of Health and Human Services on various activities needed to maintain and improve that payment system.

Provider participation (in Medicare or Medicaid): The provision of care by a physician to patients who are covered by either *Medicare* or *Medicaid.*

Quality of care: The degree to which actions taken or not taken increase the probability of beneficial health outcomes and decrease risk and other untoward outcomes, given the existing state of medical science and art.

Rational service areas: To be proposed for *HMSA* designation, an area must be "rational" for the delivery of services based on criteria governing the size and boundaries of the area and consideration of such factors as established transportation routes and language barriers.

Relative Value Scale (RVS): A list of all physician services containing a cardinal ranking of those services with respect to some conception of value, such that the difference between the numerical rankings for any two services is a measure of the difference in value between those services. (A "resource-based relative value scale" will soon be used by Medicare for reimbursement of physician services.)

Reproductive-age women: Women between and including the ages of 15 and 44 years.

Respiratory Distress Syndrome (RDS): An acute respiratory disorder that in premature infants is thought to be caused by a deficiency of pulmonary surfactant. In severe form, patients often need mechanical assistance to breathe.

Retrospective cost-based reimbursement: A payment method for health care services in which hospitals (or other providers) are paid their incurred costs of treating patients after the treatment has occurred. In this country, the term has traditionally referred to hospital payment, since other providers have generally been paid on the basis of charges instead of costs.

Rural Primary Care Hospital (RPCH): A newly designated type of rural hospital created by Congress in 1989 (Public Law 101-239). Limited to hospitals in only a few States, RPCHs will be small facilities that provide emergency and minimal inpatient care and will be eligible for special reimbursement under Medicare (also see *Essential Access Community Hospitals*).

Rural Referral Centers (RRCs): Tertiary-care rural hospitals, usually large, that serve a wide geographic area. Hospitals that qualify as RRCs must meet certain size and referral characteristics, and are eligible to receive special considerations under Medicare's prospective payment system.

"Safe harbor" regulations: Regulations proposed by the U.S. Department of Health and Human Services that would specify which practices of hospitals and other health care providers would not be unethical under the Medicare and Medicaid anti-kickback provisions.

Sentinel health events: Medical conditions that, by virtue of their presence or prevalence in a population, indicate a lack of access to acceptable, quality primary care services. Examples include dehydration in infants; measles, mumps, or polio in children; and advanced breast cancer or invasive cervical cancer in adult women.

Skilled nursing facility (SNF): A facility that provides skilled nursing care (see *long-term care*). A "distinct-part SNF" is a distinct unit within the hospital that provides such care (i.e., beds set up and staffed specifically for this service), is owned and operated by the hospital, and meets Medicare certification criteria.

Sliding fee scale: A schedule of discounts in charges for services based on the consumer's ability to pay, according to income and family size.

Sole Community Hospital (SCH): A rural hospital, usually small, that is presumed to be the only source of local inpatient hospital care to area residents by nature of their isolated location, weather conditions, travel conditions, or absence of other hospitals. Federally designated SCHs receive special considerations under Medicare's prospective payment system.

Strategic planning: A rational process by which an health care organization (e.g., hospital) determines its best course of action. This involves effectively balancing community needs for health services with the organization's strengths and ability to use available resources, and producing practical plans to implement strategies that are financially feasible and acceptable to consumer needs (American Hospital Association definition).

Sudden Infant Death Syndrome (SIDS): The sudden and unexpected death of an infant, for reasons that remain unclear even after autopsy. SIDS is the most common cause of death in the post-neonatal period.

Swing beds: Licensed acute-care beds designated by a hospital to provide either acute or long-term care services. A hospital qualifying to receive Medicare and Medicaid reimbursement for care provided to swing bed patients must be located in a rural area (as defined by the U.S. Bureau of the Census), have less than 100 acute care beds, and when applicable must have received a certificate of need for the provision of long-term care services from its State health planning and development agency.

Tax appropriations: Subsidies available to health care facilities from State or local government taxes.

Tax-exempt revenue bonds: Bonds generally are evidence of a debt in which the issuer (borrower) promises to repay the bond's holder. A revenue bond is issued by a government (borrower) to taxpayers (bondholder) to raise funds in anticipation of tax receipts, and then repaid from tax revenues once they are received. Most bonds issued by governments are tax-exempt, that is, the bondholder pays no Federal income tax on interest earned.

Third-party payment: Payment by a private insurer or government program to a medical provider for care given to a patient.

Total hospital margin: A measure of hospital profitability, calculated as (total revenues minus total costs) divided by total revenues. Total revenues include private contributions and public subsidies as well as patient care and other revenue.

Ultrasound: High-frequency sound waves that can be focused and used to picture tissues, organs, structures, or tumors within the body. Ultrasound is particularly useful for ***in utero*** examinations of the fetus.

Uncompensated care costs: Deductions from patient care revenues that are attributable to charity care and *bad debts* (for which the health care facility never expects to receive payment).

Unusually high-needs criteria: Criteria specific to the type of *HMSA* (i.e., primary care, dental, psychiatric) that are indicative of an unusually high need for medical care (e.g., poverty rates, population without fluoridated water supply, and high prevalence of alcoholism).

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